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ORIGINAL PAPERS.

RECENT INQUIRIES CONCERNING THE BLOOD CHANGES INDUCED BY ALTITUDE.¹

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THAT there are important changes in the blood when human beings or animals are transferred from an atmosphere in which the air pressure is normal for sea level to one in which it is markedly diminished, is admitted by all observers who have studied the subject.

These changes have been found to be practically the same, whether the subject of the experiment has been under the influence of diminished air pressure, artificially produced in the laboratory, or under the natural conditions in higher altitudes. This fact disposes of the theory that the changes are primarily due to the peculiar conditions other than the diminished air pressure present in high altitudes.

All admit that there is a marked and rapid increase in the number of red cells, and a slower and somewhat less marked increase in the hemoglobin and specific gravity. While the greater number of the observers believe these changes to be real, there are, nevertheless, certain others who advance various theories to prove that they are only apparent.

The important point, then, is whether altitude brings about a true blood regeneration or only an apparent increase of the number of red cells and hemoglobin.

While it is impossible, and indeed unnecessary, to bring before you in detail the literature on the subject, I propose to append to this communication a list of the important references dealing with it, and will chiefly content myself with giving you an abstract of the most important recent communication. It is by Drs. Ossian, Schaumann and Emil Rosenquist,

¹ Read before the American Climatological Association (15th meeting) held at the New York Academy of Medicine, New York City, May 9 and 10, 1899.

of Helsingfors, Finland.² These observers conducted their experiments especially with a view to testing the various explanations given of the phenomena.

They confined their observations almost entirely to experiments on animals. The animals (rabbits, dogs and pigeons) were kept in bell jars at reduced barometric pressure (450-480 mm. Hg.), according to the method of Regnard, Sellier and others, for periods varying from nine to thirty-three days.

The blood examination, which was performed in each case at intervals of several days, consisted of (1) a count of the red cells (Thoma-Zeiss apparatus); (2) the estimation of hemoglobin (Fleischel); (3) the measurement of the diameters of the red cells (dry preparations, average based on 200 to 500 determinations); (4) microscopic examinations, with particular reference to the presence of nucleated red cells (Ehrlich's triacid stain, also eosin and hematoxylin). The blood was drawn from the ears of dogs and rabbits, from the neck in pigeons, and in a few cases blood from the liver and from the aorta was examined before the animal was killed. Besides this, the gross changes in the marrow of the long bones was noted in two cases.

In all cases a marked increase (20% to 50%) occurred in the number of red cells. The high relative humidity (87% to 100%) in the bell jars (temperature 21-26 degrees F.) makes the assumption of an inspissation impossible.

The increase in hemoglobin was not proportional to the increase in red cells. A temporary decrease in the hemoglobin occurred in all cases during the first eight to eleven days. A similar temporary decrease took place in the number of red cells in about one-half the cases.³

In order to determine the effect on the return to normal barometric pressure (760 mm.), the blood examination was continued in many cases for from three to ten months after the animals were released from the bell jars. A decrease in the number of red cells occurred immediately, but was followed by a marked rise, which, after a number of fluctuations, remained, in the majority of cases, at a decidedly higher figure than was reached by the blood count previous to the experiment. (See tables, pp. 140-149.) The authors think that previous investigations have not been pursued for a sufficiently long period. Leuch's recent work on Anemic School Children⁴ who had been sent to the mountains and were examined on their return and at intervals of two to four months afterwards, bear out this point. (See table, p. 161.)

Contrary to all previous investigations, Schaumann and Rosenquist

² Ueber die Natur d. Blutveränderungen i. Hohenklima., *Zeitschr. f. klin. Med.*, Bd. XXXV., Heft 1-4, pp. 126-170 & 315-349, 1898.

³ *Z. Schrift f. klin. Med.*, 1898, Bd. XXXV., Heft. 1-4, pp. 123-170, pp. 315-349.

⁴ Leuch, *Correspondenzblatt Schweizer Aertzte*, No. 21, p. 657, 96.

find that during the period of increase of the red cells the average diameter of the cells increases without exception. (See tables, pp. 140-149.) This is due to a diminution in the number of microcytes, and an increase in the number of macrocytes, the proportion of cells of average diameter remaining unchanged. After a return to normal pressure, the average diameter decreases, the decrease occurring in the ratio between the microcytes and the macrocytes, while the proportion of cells of average diameter remains the same as before. Measurement of the red cells in blood from one of the authors, made during a journey into the Norwegian mountains, coincides with this finding. (See tables, p. 166.) The assertions of Viault, Schroeder and others in regard to size of corpuscles are discredited on the ground that no actual measurements were made, but that reliance was put upon visual comparison. Koeppe's figures⁵ in regard to size of cells suffer, in their opinion, from the faults inherent to the hematocrit, and cannot be used for comparisons.

Nucleated red cells were found by them to be slightly increased in number throughout confinement at low pressure, and very markedly at a certain period; this last would seem to have no special significance, because no two cases agreed in the time of this period. (See pp. 140-149.) In the period after the release from the bell jar, the number of the nucleated red cells gradually diminished except at the time of the beginning of the diminution of red cells, when a slight increase took place. Cell shadows were increased in number after the diminution of red cells began.

The blood of pigeons confined in the bell jars showed numerous mitotic figures and actual division of nuclei; many of the cells were polychromatophilic, which is regarded as evidence of increased proliferation of blood cells.

In specimens of blood taken simultaneously from the skin, liver and aorta in two animals confined in bell jars and from two control animals, the number of red cells per c.mm. in each locality was found to be exactly the same.

The examination of the bone marrow gave no reliable results and no microscopic examination of it is reported.

After reviewing the literature of the subject, Schaumann and Rosenquist point out that six hypotheses have been adduced to account for these changes in the blood produced by high altitudes.

Two of these assume that the increase in red cells is real. Miescher, Egger and others support the view of increased proliferation of blood cells in the blood-forming tissues, while Fick's theory is that there is a prolongation of the life of the individual cell, along with a normal proliferation.

The other four hypotheses contend that the increase in red cells is only apparent. Thus, Grawitz considers it to be entirely due to an inspissation

⁵ Koeppe, Arch. Anat. Physiol., pp. 154-184, 1895.

of the blood; while Bunge believes it to be the result of an exudation of plasma into the lymph spaces of the tissues.

Winternitz supposes that red cells become aggregated in certain of the internal organs and are forced into the general circulation by changes produced upon the latter by altitude, and Zuntz finally refers it to vasomotor control, which is influenced by certain factors of high altitude.

In the light of the results of this investigation, the following criticisms of each theory are made. The authors consider that their results support the theory of new formation of blood cells, but are forced to make changes in the terms of its form.

*Vasomotor theories.*⁶—1. Zuntz's hypothesis: The authors point out that in their own experiments no factors exist which could give rise to the required nervous irritation, that their animals were removed from the bell jars for each examination, and that, according to the theory, the irritation should quickly disappear.

With reference to the theory that the number of red cells is increased in the capillaries and decreased in larger vessels, it is pointed out that in former investigations blood from both the capillaries and the larger vessels had been examined, with the uniform result of an increase in red cells; that the simultaneous increase in red cells and decrease in hemoglobin (at the beginning of the experiments) cannot be explained by this theory. That a purely vasomotor change should produce no change in the size of the red cells; that the over-stimulated nerves would eventually relax; that a return to higher pressure should produce an immediate fall in the number of red cells to normal, which is not the case.

2. Bunge's theory⁷ is met with the same objections.

3. Winternitz's theory⁸ the authors oppose by reference to their examination in two cases of blood taken simultaneously from the skin, liver and aorta, in each of which localities they found the same count. (Corroborated by Breitrustin.)

4. Grawitz's theory of inspissation:⁹ This theory is invalidated by Schaumann and Rosenquist's experiments, in which the respired air was almost saturated with water vapor; by the fact that loss in water by the blood is rapidly compensated for by the tissue fluids, and that a true inspissation of the blood is always accompanied by a proportionate loss in weight of the animal; and, further, by the fact that in true inspissation of the blood the diameter of the red cells is always decreased.

Theories assuming a true increase in red cells. 1. Fick's theory:¹⁰

⁶ Schumburg u Zuntz, Pfluges Arch. Physiol., Bd. LXIII., pp. 461-494, 96.

⁷ Bunge, Verhandlungen d. 13. long. inn. Med., 1895.

⁸ Winternitz, Centralbl. klin. Med., Bd. XIV., No. 49, pp. 1,017-1,022, 1893.

⁹ Grawitz, E., klin. Pathologie d. Blutes, pp. 333-343, Berlin, 1896.

Limbeck, R.v., klin. Pathol. d. Blutes, 2. Aufl. p. 207, Jena, 1896.

Ehrlich, Untersuchungen, z. Histol. u. Klinik. d. Blutes, p. 99, Berlin, 1891.

Quincke, Deutsch., Arch. f. klin. Med., Bd. XX., pp. 1-31, 1877.

¹⁰ Fick, A., Pfluger's Arch. f. Physiol., Bd. LX., pp. 589-593.

This theory, which premises that the absorption of oxygen is slower than normal at high altitudes and the consumption of hemoglobin is decreased, is discredited because it has been conclusively shown that metabolism is more rapid at high altitudes than at sea level and must, therefore, increase particularly the consumption of hemoglobin.

2. The theory of regeneration of Miescher, Egger and¹¹ others is based on the two premises that (1) microcytes appear during the period of increase in red cells, and that (2) the increase in hemoglobin does not keep pace with that in the number of red cells. The last point the authors grant, and point out that it has been regarded generally (Otto, Hoffmann and Limbeck) as an evidence of regeneration. The first assumption is disputed, and attention is called to the fact that Ehrlich, Quincke and V. Limbeck look upon microcytes as products of degeneration of red cells, and also that one of the authors (Schaumann) has found in secondary anemias that microcytes are most numerous at the height of the disease, and that they disappear as convalescence sets in, and give place to macrocytes. To determine this point experimentally, two animals (a rabbit and a dog) were bled, and a differential count made of red cells of various diameters, with the result that microcytes were seen to diminish markedly in number immediately after the bleeding when regeneration is most active. (See table, p. 333.) It was found, moreover, that an increase occurred in the number of macrocytes, and that this, instead of an increase in microcytes, is an accompaniment of regeneration. In accordance with this finding, it follows that the increase in macrocytes met with in the blood in the author's first experiments indicates a regeneration of red cells. This conclusion is strengthened by the occurrence of nucleated red cells in the mammals, of mitotic figures in the red cells of the birds employed, and of "shell shadows" in the blood after release from the bell jar.

Schaumann and Rosenquist, therefore, conclude that all changes which occur in the blood, due to diminution of barometric pressure, are best and most easily explained by the assumption that there is an increased proliferation of red cells.

The authors claim that this theory holds also for the explanation of the results of the *clinical* observations made in high altitudes. They reach this conclusion by a process of elimination, having shown in their criticism of the other theories that causes other than a diminution of atmospheric pressure are insufficient for the production of the hematic phenomena. As positive proofs from clinical material, they refer to the following: The hemoglobin does not increase in proportion to the increase in the number of red cells; the increase in the average diameter of red cells, and the presence of normoblast nuclei found free in the blood. (The last two

¹¹ Miescher, *Correspondenzbl. schweizer Aertzte*, pp. 809-832, 1893. Egger, *Verhandlungen d. 12. Cong. inn. Med.*, pp. 262-276, 93.

points are dependent on the findings in the blood on Schaumann's journey to Norway.)

In addition to these inquiries of Schaumann and Rosenquist, some of the most valuable evidence in favor of a true blood regeneration is to be found in Dr. Paul Regnard's book, "*La Cure d' Altitude*,"¹² in which he gives convincing proofs, based mainly on his experiments at the laboratory of the Sorbonne.

The Smithsonian (Hodgkins) prize memoir for 1898 by Drs. Herrera and Lope, of the City of Mexico, in which the results of their observations, conducted on the high plateaus of Mexico, are recorded, also support the belief in the true blood regeneration theory.

On the other hand, Drs. Schroder and Meissen, of Hohenhonnenn, while confirming the fact that there is an increase in the number of red cells and hemoglobin under diminished air pressure, ascribe it as largely due to the effect of the diminished air pressure upon the cover glass of the Thoma-Zeiss instrument. As, however, the blood examinations of Schaumann and Rosenquist were made after the animals were removed from the bell jars, and under normal air pressure, as also were those of Regnard and many other experimenters, this theory fails to account for even a proportion of the increase.

The interesting and handsome volume recently published by Prof. Angelo Mosso,¹³ of Turin, entitled "*Man in the High Alps*," contains a protest against the belief in a true blood-cell proliferation, but the only original evidence offered is some experiments made by his assistant, Dr. Kuthey, in Turin and at Geattenly (elevation 4,000 feet) upon two rabbits, one dog and three men. These experiments are limited to daily observations for the first four continuous days; but as the blood changes are not complete or permanent under a month, these experiments are not worthy of consideration as evidence in this discussion.

I had hoped to be able on this occasion to offer for your consideration the details of experiments that I have instituted in Colorado; but I must postpone this for the present, and content myself with merely giving you a brief statement of the general trend of these inquiries. The fact that there are so many sources of error in the instruments used, from the variations of the personal equations of the observers, and the variations due to outside causes and circumstances in the observed, that it was found that a considerable amount of preliminary work has to be done before anything like definite figures can be given, so that the experiments conducted in Colorado Springs have been largely an inquiry into the value of the different methods and a study of the causes of error. I am indebted to my colleague, Dr. P. F. Gildea, for the practical work carried on, also to the skilled assistance

¹² Masson et cie., Paris, 1897.

¹³ *Der Mensch auf den Hochalpen*, Angelo Mosso, Leipzig, Verlag von Veit and Comp., 1899.

of Dr. W. Baumgarten and Dr. D. P. Mayhew. Many of the observations were made by these three gentlemen at the same time, consequently the chances of error were considerably lessened.

We believe that, to give approximately correct figures, numerous observations must be taken and averages made, because two observers, counting from the same drop of blood and with the same instrument within a few minutes of each other, not infrequently find variations in the number of red cells of from 100,000 to 200,000.

Daland's hematocrit gave a red cell count averaging about 500,000 lower than the Thoma-Zeiss instrument. The count in two tubes of the hematocrit varied from each other 100,000 to 200,000. When the hematocrit was revolved one minute, the count nearly approximated that of the Thoma-Zeiss. If revolved two minutes, according to directions, the count was as stated, 500,000 lower. If the count was not taken at once, it appeared higher because of a rebound in a few seconds from the pressure produced by the revolution of the instrument.

The results from using the Hammerschlag specific test for hemoglobin varied greatly, and were obviously less reliable than the Fleischel color test. The defect in the Hammerschlag test may have been due to an increased evaporation of the benzol and chloroform under the diminished air pressure of Colorado.

The experiments, however, confirm in a general way the theory of increased blood regeneration. There was found an increase of the red cells, hemoglobin and specific gravity of the blood after continued residence in Colorado Springs in the blood of those coming from the sea-level. This increase remained permanent during residence and was found to be only partially lost when the blood was again tested on the return of those who had been anemic after two or three months' absence at sea-level.

The ascent to higher levels produced a still greater and very rapid increase of red cells. For instance, Mr. B., a gentleman who had kindly submitted himself to frequent blood tests in Colorado Springs, one day made an excursion in a train ascending as high as 10,000 feet, being 4,000 feet above Colorado Springs (6,000 feet elevation), from whence he started. The following morning, after his return, the blood showed an increase of 600,000 red cells. Several counts were taken later, and the last, a month after making the excursion, showed that he still retained a gain of 400,000 red cells.

I believe the members of the Society could aid materially in solving the problems connected with the influence of altitude upon blood if, when they are sending patients, or know of persons in normal health going, to Colorado, they would test their blood before leaving sea-level and would request them to submit themselves to a similar examination immediately after their arrival in Colorado. In this way the contrast would be much clearer than it is when all observations are taken at an altitude and the

first examination is made just after the person emerges from the exceptional and trying conditions of a long railroad journey. The members could do good work by testing the blood of persons before and after visiting the sea shore.¹⁴ The observations of Marestang are the only ones I am aware of. The effect upon the blood of residence in desert climates of moderate elevation should also be inquired into.

Further, I believe the Society as a body should appoint a committee that would receive and hold all publications bearing on the subject of climate, and who would send a list of such publications three or four times a year to the members.

THE LABORATORY AS AN AID IN THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE STOMACH.¹

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THE well-known dictum of the wise Solomon, that "there is nothing new under the sun," is hardly applicable to scientific progress. In looking over the history of any science, we see the rapid strides made by the human mind over vast territories of ignorance and superstition. The same is true of medicine. As late as the sixteenth century, La Martinière, a French astronomer, makes the following absurd statements:²

"The lunar planet is damp of itself; but, by the radiation of the sun, is of various temperaments, as follows: In the first quadrant, it is warm and damp, at which time it is good to let the blood of sanguine persons; in its second, it is warm and dry, at which time it is good to bleed the choleric; in its third quadrant, it is cold and moist, and phlegmatic people may be bled; and in its fourth, it is cold and dry, at which time it is well to bleed the melancholic. It is a thing quite necessary to those who meddle with medicine to understand the movement of this planet, in order to discern the causes of sickness. And as the moon is often in conjunction with Saturn, many attribute to it apoplexy, paralysis, epilepsy, jaundice, hydropsy, lethargy, catapory, catalepsy, colds, convulsions, trembling of the limbs, etc., etc. I have noticed that this planet has such enormous power over living creatures that children born at the first quarter of the declining moon are more subject to illness, so that children born when there is no moon, if they live, are weak, delicate, and sickly, or are of little mind, or idiots." To Saturn he attributed "long, quartan, or daily fevers, indisposition of the tongue, arms and bladder, general paralysis, gouts, abscesses,

¹⁴ *Revue de Med.*, No. 6, 1890.

¹ Read before the Delaware State Medical Society, June 13, 1899.

² Quoted by C. Flammarion in "The Wonders of Heaven."

obstructions of the heart and spleen, the black jaundice, polypus, diseases of the intestines, corns of the feet, spitting of blood, canine appetite, difficulty of breathing, stone in the loins and bladder, epilepsy, cachexy, dropsy, melancholy, leprosy, and other diseases proceeding from foul and putrefying humors."

In the seventeenth century Dr. Willis, a distinguished English practitioner and author, has the following to say on the treatment of jaundice as practiced in his time: "Medicines endowed with a Volatile Salt, as earthworms, snails, millepedes, nay, lice, the Dung of Fourfooted Beasts and of Fowls being introduced into Practice for curing the Jaundice are usually given, not only by Empyricks, but likewise are prescribed by Physicians of the best account." Another remedy for jaundice recommended by the author as a never-failing panacea is the following: "Take the fresh Urine of the Patient made at one time, ashes of the Ash tree searced, what suffices. Mix them and make it into a paste, and form it into three Balls of an equal bigness and put them in a close place near the Fire or a stove. When these Balls grow dry and hard, the Jaundice vanishes." . . . "The reason of this operation is, that when the Lixivial Salt in the ashes is mixed in the Urine it presently sets free the Volatile Salt which before was kept under in it, or entangled with other particles, and at the same time this is done in the Icterial Urine it happens by sympathy that the Volatile Salt also in the Blood of the Patient gets free from the Dominion of the fixt Salt and Sulphur and consequently the Icterial Dyscrasy of the Blood vanishes."

This is similar to the "sympathetic powder" of Digby, who prospered during the same enlightened age. The powder was applied to the weapon which caused the wound.

I have in my possession a very interesting book, entitled: "Physiology, Nosology, and First Lines of the Practice of Physic," written by William Cullen, M.D., and first published in 1772, having been republished as late as 1827. In this book the author, speaking of digestion, says: "The alimentary canal, and especially the stomach, are commonly affected by the different states of the brain, and the stomach again has more effect upon the brain than any other part of the system. We will not pretend to explain completely what is the foundation of this singular connexion; but we can observe this, that no internal part of the system is so remarkably an organ of sensation as the stomach, that it not only expresses its own different conditions with regard to fullness, emptiness, the acrimony of the matter which it contains, etc., but the general state of the system also, as more full or empty. The stomach must, therefore, have a more particular power in affecting the brain, as it is from the organs of sense that the beginning of all the motions of the system arises."

To further prove his statement, the author adduces several examples, demonstrating to his own satisfaction the fact that everything introduced into the stomach acts on the system by its local action on the former. The

feeling of hunger he ascribes to the emptiness of the stomach and the consequent contraction of the muscular fibers, which view he opposes to that of Haller, who believed that hunger was produced by the friction of the opposite sides of the stomach when empty. Moreover, Cullen traces an intimate connection between perspiration and hunger. An active man perspires, hence he has a good appetite; while one of sedentary habits has a poor appetite, for he does not perspire. Thirst, on the other hand, is due chiefly to the dryness of the fauces produced by the heat and surface evaporation. Speaking of digestion, the author divides all food stuffs into oil and saccharine matter. "The vegetable matter, by undergoing a putrefactive fermentation, is changed so as to acquire very exactly most of the characters of animal matter." The saliva serves the sole purpose of moistening the food, while "the fluids of the stomach have the power of suddenly and powerfully loosening the fixed air of the alimentary matters, which is the first step toward putrefaction, and that which most effectually breaks down the texture, and perhaps the mixture of bodies." These putrescent bodies excite fermentation of the vegetable substance producing acid in the stomach, this acid stops putrefaction (acid formation) and either becomes absorbed or unites with the putrescent and oily substances. Admitting his ignorance as to several other points in digestion, the author concludes that assimilation is not complete until the chyle, together with the blood, passes through the lungs, there undergoing some changes which he could neither define nor explain.

I have dwelt somewhat at length on these old doctrines and conceptions to point out the contrast between them and the ideas of the present day. By deducting the knowledge possessed not quite a century ago from that of the present, we get the difference representing the progress for the last few decades. This remarkable progress in medicine is due to its emancipation from the bondage of superstition with which it was surrounded and its assimilation with the sister sciences, on which scientific medicine is based. The mysterious and miraculous were dispersed, like a fog, by the streaming in of the rays of science. Medicine is an art, but is founded on positive science; and, unless this foundation be constantly kept in view, no progress is possible. The art of healing is dependent on personal intuition and skillful guessing, if I may so express myself, but the science of healing is based on careful research. Hippocrates possessed the art, and not the science, of medicine. He observed and reproduced the clinical picture of disease as the ancient Greek sculptor observed and reproduced beauty. The clinical pictures of Hippocrates and, later, Sydenham are perfect, for their artistic abilities were great, but the causative factors were hidden to them, and philosophic speculations were made to fill the gaps. The chemist, the botanist, the bacteriologist cannot imagine; they must actually observe the various phenomena they describe. They are in a measure photographers, and not artists. Science flourishes in the laboratory.

Chemistry would be impossible without a chemical laboratory. Bacteriology remained in its infancy until the laboratory technique became perfected. Medicine, depending largely on chemistry, of necessity depends on the laboratory. What is physiology but a study of the bio-chemistry of the living body? What is pathology but the study of the effects of poisonous materials, originated either by bacterial action or otherwise, on the living tissue? What is bacteriology but the bio-chemistry of the unicellular micro-organism? Every cell, as we know, is composed of C. N. S. H. O. P. Cl. K. Na. Mg. Ca. Fe. "The conception of a 'vital ether,' a 'spiritus animales,' a 'vital matter,' etc., with which the earlier physiology so freely dealt, have, therefore, in harmony with the advanced development which analytical chemistry has undergone at the present time, completely disappeared from the present theory of life; living substance is composed of no different chemical materials from those occurring within lifeless bodies."³

The statement, then, that a good clinician can get along without the aid of a laboratory, is absurd. Health is the expression of normal chemical activities of the cell. Disease is the antithesis; it is the expression of abnormal chemical activities. To study disease is to study toxicology, *i. e.*, the effect on the organism of an overdose of some chemical product of metabolism. Urea retained in the system kills; so does carbonic acid; while both are normal products of metabolism. Strychnin is a vegetable alkaloid which affects the body in poisonous doses like tetanus. The delirium produced by belladonna is not unlike that caused by some diseases. Coma of opium poisoning is almost identical with coma resulting from uremia. Moreover, when we remember that, in diphtheria, dysentery, cholera, typhoid fever and other infectious diseases, the morbid and fatal effects are produced by the toxins which are chemical products of metabolism of the bacteria, we can readily see the vast importance of chemistry, both in physiology and pathology. Especially is this the case in digestion. "The digestive juices," says Foster,⁴ "do bring about, inside the alimentary canal, changes which in the main are the same as those observed in laboratory experiments outside of the body." Digestion in the stomach, excepting those enigmatic problems of auto-digestion of the stomach, absorption, etc., is a series of chemical changes which can very well be studied in the laboratory.

It is generally conceded that, in order to appreciate pathologic changes taking place in a certain organ, we must understand the physiology of the organ involved. Disease is not an entity; it means, as even the word implies, the absence of health, just as black means the absence of white. Disease, in other words, is pathologic physiology. If this is granted, logic will force upon us the conclusion that, since physiology is largely a series of chemical processes, pathologic

³ Max Verworn: "General Physiology," The Macmillan Co.

⁴ M. Foster: "A Text Book of Physiology."

physiology is of similar nature, and therefore should be studied largely in the laboratory. Applying these general principles to diseases of the stomach, we are led to the conviction that they cannot be studied intelligently unless the laboratory is called to our aid. I do not wish to be understood that every disease of the stomach can be diagnosed by the aid of the test tube and microscope. Such statements, made by thoughtless enthusiasts, only tend to bring discredit upon these latest methods of diagnosis. All I claim for the laboratory is the modest but none the less important role of aiding the physician in determining the degree of departure in each case from normal physiologic activity. The presence of albumin in the urine is of itself not pathognomonic of Bright's Disease. The absence of HCl or presence of lactic acid in the stomach is not positive proof of cancer, but these findings, added to information obtained from the clinical symptoms, will establish a positive diagnosis. No physician can diagnosticate intelligently diseases of the stomach without a chemical examination of its contents; especially is this true of so-called functional gastric derangements. The use of the stomach tube, therefore, should be as frequent in the diagnosis of gastric diseases as that of the clinical thermometer, the statements of the skeptics to the contrary notwithstanding.

The dangers so many are wont to see in the introduction of the stomach tube are largely imaginary. Any intelligent physician will abstain from using the tube in the last stages of pulmonary tuberculosis, emphysema, fevers, aneurysm, heart disease, extreme debility, in short, any condition in which an undue excitement or irritation may act injuriously and often fatally upon the patient. There are, no doubt, a few nervous patients with whom even an expert will fail in the introduction of the tube. But in the majority of patients the tube can be introduced with considerable ease and comparative comfort once you secure the confidence of the patient and the proper skill, which, by the way, can only be acquired by practice. Even in the nervous cases above referred to, a sample of the stomach contents can be obtained by the aid of an emetic of the so-called central variety, such as ipecac or apomorphin. The information we obtain from the analysis of the contents is often so valuable as to fully compensate for the trouble. First, we determine as a preliminary step the amount of acidity due to free acids, generally by congo-red, and the acidity due to free HCl, by phloroglucin-vanilin or methyl-orange. We also observe whether the food is well digested, whether mucus or bile is present. Then we make a quantitative estimation of free HCl by Mintz's method, which is far preferable to the inaccurate method of Töpfer, the total acidity by phenolphthalein, and the combined HCl by alizarin (Töpfer's method). The presence or absence of lactic acid is determined by Uffelmann's test; that of fatty acids, by the very simple and convenient method of Cohen and Mehring. If any bile is present, it can easily be determined by Gmelin's test. We next determine

the condition of starch digestion by testing for free starch with Lugol's solution, and the products of starch—maltose and dextrose—by Fehling's test. The proteid digestion is finally studied by determining the presence and activity of rennin, of the ferment which will coagulate milk in a neutral medium, when present, while the activity of pepsin is determined by the rapidity with which a certain amount of the filtrate will digest a known quantity of egg-albumen. The various stages of proteid digestion, namely: Albuminoids, acid albumin or syntonin, propeptones and peptones are easily determined; the first by boiling; the second, precipitation with decinormal soda solution; the third, addition of sodium chlorid and a few drops of acetic acid, if necessary; and the fourth, by the biuret reaction.

I have not described in detail the various methods employed in gastric analysis, for this would be only a repetition of what is fully treated in the later works on this subject, notably Hemmeter's text-book on "Diseases of the Stomach," and Reed's series of "Talks" in the *INTERNATIONAL MEDICAL MAGAZINE*.

I shall limit myself to pointing out a few of the indications afforded by the results of the chemical analysis. The human saliva has a more important function to perform than merely to moisten the food. It contains an active enzyme, which converts starches into maltose and dextrose. This conversion begins in the mouth and continues in the stomach for fifteen to thirty minutes, or until the acidity reaches 1:1,000. The stomach contents do not at once become acid. The HCl first secreted combines with the albumin, forming acid-albumin, and not until complete saturation of the acid has taken place does free HCl appear. This allows the ptyalin to act undisturbed in the stomach during the first period of digestion. When, however, the HCl is secreted in very large quantities, as in some cases of hyperacidity, the gastric contents become acid at once, and the digestion of starch is stopped. The presence, therefore, of undigested starch in the filtrate, as determined by Lugol's solution, points to hyperacidity. Again, according to Boas, the starch digestion is resumed when the acidity of the stomach contents is diminished, as it normally is at the end of a meal. In hyperacidity this diminution does not take place. On the other hand, we find proteids perfectly digested. The reverse takes place in hypoauidity or anacidity, in which condition starches, but not proteids, are well digested.

The much more pernicious effects of hyperacidity as compared with hypo- or anacidity are quite apparent. With good gastric motility, the organism can very well get along with little or no digestion in the stomach, as is attested by the numerous cases of achylia gastrica, or atrophy of the gastric glands, where the patients are in good health so long as the motor power is good; and by the recent case of Shlatter, where the stomach was entirely removed, and yet digestion was perfect until the patient died from secondary carcinoma, eighteen months after the operation.

The proteids do not undergo any putrefactive changes in the stomach

unless dilatation is present. Quite a different state of affairs prevails in cases of hyperacidity. The hyperacid chyle not only irritates the mucous membrane of the stomach, aggravating the already existing proliferation of glandular structure, which, according to Hemmeter, is present in two-thirds of all cases of hyperacidity,⁵ but passing into the intestine neutralizes the alkaline medium so essential for intestinal digestion.⁶ This inhibits digestion, and in time produces intestinal catarrh, which is one of the most obstinate affections to cure. The carbohydrates depend largely for their digestion on the small intestine, especially when the secretion of the stomach is hyperacid; and retarded intestinal digestion leads to fermentation in that viscus. That is why, in hyperacidity, we are likely to have intestinal fermentation, while in hypo- or anacidity the fermentation is usually more especially gastric. When, however, the motility is deficient or dilatation of the stomach is present, hypoacidity is of course a much more distressing affection. The antiseptic properties of HCl have been demonstrated by many careful observers. Harris⁷ found that when cats and guinea pigs are made to fast, no bacteria are found in the stomach within twenty-four hours, and only few within forty-eight hours. On feeding the animals on cultures of anthrax, he failed to find the bacilli two to four hours after ingestion. Miller⁸ proved that lactic acid fermentation will keep up until the acidity of the gastric contents produced by HCl reaches 1.6:1,000. If too little acid is secreted, or too much food ingested, the fermentation will keep up. Gastric derangements from various causes may favor fermentation by decreasing the secretion of HCl.

Kast⁹ found that when the secretion of HCl is diminished the ethereal sulphates in the urine are increased. With regard to this last observation, however, I may safely state that it cannot be accepted as a general rule. During my charge of the laboratory of Dr. Boardman Reed, in Philadelphia, I had many opportunities to convince myself that an excess of indican may go hand in hand with hyperacidity.¹⁰ The degree of putrefaction is largely dependent on the motility of the stomach and the state of intestinal digestion. With poor intestinal digestion putrefaction will take place, while

⁵ J. C. Hemmeter: "Diseases of the Stomach," 1898; and *Jour. Amer. Med. Assoc.*, October 9, 1897.

⁶ Boardman Reed: "The Frequent Dependence of Insomnia, Mental Depression and Other Neurasthenic Symptoms upon Diseases of the Gastro-Intestinal Tract." *Jour. Amer. Med. Assoc.*, July 11, 1896; and "The Excessive Secretion of Hydrochloric Acid by the Stomach, and Its Possible Serious Consequences," *International Clinics*. Vol. I., 7th series.

⁷ "Report on Certain Bacteria in Their Relation to Digestive Processes" (Rep. of Med. Officers to Loc. Gov. Board, 1888-89).

⁸ "Ueber Gahrungsvorgange in Verdaungstract u. die dabel betheiligten Spalt-pilze," *Deutsch. Med. Woch.*, 1885, No. 13.

⁹ "Ueber die quantitative Bemerkung der antiseptischen Leistung des Magensaftes, Festschrift zur Eröffnung des Neuen allg. Krankenhauses zu Hamburg-Eppendorf," Hamburg, 1899.

¹⁰ Hemmeter also found an excess of indican in many of his cases of hyperacidity.

when the latter is good and the motor power of the stomach is efficient to transfer the undigested food to the duodenum within the normal time, no putrefaction will occur. With bad motility the case is different. The numerous bacteria usually found in the stomach find an ideal environment. The stomach serves as an excellent incubator, while the contents in which the proteids are in a state of partial solution and decomposition form a culture medium equal to any in the bacteriologic laboratory. The toxins, produced by the bacteria, absorbed in the gastro-intestinal tract, poison the nervous system, producing the well-known but not as well-appreciated phenomena of autointoxication.

Should free HCl be found wanting, the total acidity will help us in differentiating functional anacidity from gastric atrophy. If the total acidity is not below 10-12 and is not due to fatty acids (this is determined by the method of Cohen and Mehring mentioned above), while rennin is found active, gastric atrophy may generally be excluded.

Time and space will not permit me to give a detailed account of the many valuable services rendered to us by the microscope in this particular field. I shall only mention a few. Boas, and lately Hemmeter, point out the important information to be gathered from a microscopic examination of the "stomach washings." In many instances diligent search will disclose a detached piece of mucous membrane, which, when put under the search-light of the compound lens and the condensor, will show the condition of the peptic glands. In cancer, we may find "cancer nests" and, as pointed out by Leider, who has done pioneer work in this line, cells in a state of indirect division (mitoses), which are diagnostic of cancer. Again we may find the Oppler-Boas bacillus, which, according to many observers, is almost of pathognomonic significance in carcinoma.

Of minor importance, but none the less valuable, is the finding of yeast fungi, which, when in large numbers, point to fermentation, mycoderma aceti, mucus cells, undigested food, especially when it is known to be the remnants of a previous meal, etc. This work is still in its infancy; but, by persistent effort, we shall no doubt succeed in rearing this infant into a vigorous servant to the diagnostician.

Now, what role does the laboratory play in gastric therapeutics? I am aware that there are many physicians who care very little for diagnosis, and treat their cases "symptomatically." To them my foregoing remarks would appeal but little, were not I able to show that if it is difficult to make a diagnosis without the aid of the laboratory, it is absolutely impossible to treat diseases of the stomach intelligently without a previous chemical examination of the stomach contents. The old way of prescribing, first, acids with or without pepsin, then alkalis before or after meals, then pancreatin or, perhaps, papoid, caroid and all other stuff that "digests all food eaten by man or beasts," has, fortunately for the patient, been found very unsatisfactory, to say the least. It is just because the general treat-

ment of so-called "dyspepsia" is unscientific, that quacks thrive so well on the credulity of the people. To be scientific, the treatment must aid nature, and not antagonize her. To administer HCl when alkalies are indicated, and *vice versa*, is to aggravate the condition. To allow the patient to keep up a diet which has brought about the dyspepsia is to establish a vicious circle which robs the physician of a patient and adds a victim to the quack. You cannot correct the patient's digestion unless you know where the defect is, and how can you know it without a careful analysis?

LATE CONSECUTIVE ORO-PHARYNGEAL SYPHILIS.¹

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THE division of syphilitic manifestations into primary, secondary, and tertiary lesions, while of value in the study of the effects generally, is not distinctly marked in the oro-pharynx; the chronologic order in which the changes take place being here very irregular as compared with the dermal alterations. In the pharynx and mouth all the stages may be observed, but the lesions are varied, to a certain extent interchangeable, and have selective points for the more prominent manifestations. For example, the posterior pharyngeal wall is singularly exempt, while the mucous patch is frequently seen at the points where irritation is most marked, as on the anterior pillars, and especially the lingual and buccal surfaces in proximity to imperfect teeth. Gumma, while appearing on the tongue, is more frequent on the tonsil, and is comparatively rare in other portions of this region.

The varied phenomena which appear on the border line, as it were, of the principal stages, are frequent here, and, for convenience of study, have been classed as the early and late consecutive lesions. These are most prominent after the secondaries, and yet appear too early in the course of the disease to be placed under the class of tertiary lesions, as they frequently partake of the characteristics of both. Roberts, in expressing this relation, says that "frequently, after the secondary period, there succeeds a period varying greatly in duration, in which there are no symptoms, or only occasionally slight cutaneous eruptions, or little ulcers on the tongue or lip," this interval being followed by tertiary symptoms. Three cases have been selected as showing the main features here outlined, the first with late consecutive mucous plaques of the tongue.

H. P. Male, age forty-four years. Was seen January 2, 1897, complaining of sore tongue. Had never had any illness except ulcerated sore throat seven months ago, and the present condition of his tongue, which has

¹ Read before the Northwestern Medical Society, April 4, 1899.

lasted for ten weeks, although his hair had been falling out for two years. Examination showed a small mucous patch on the anterior surface of the apex of the tongue. About one-half inch to the right of this there were three patches, covered with a gray, opalescent membrane, and all these were situated on the same base. The teeth were in bad condition, and especially so at the site of the mucous plaques, where they irritated the tongue to a considerable extent. The pharynx was brick-red in color, and over the left anterior pillar there was a dark red-brown patch; this was not ulcerated, the only change being the alteration in color, diagnostic of syphilis. Although but an indefinite history of infection was obtained, the characteristic appearance of the oro-pharynx was sufficient to make a diagnosis, and, in addition to local medication, the patient was given bichlorid of mercury. Under this treatment the plaques disappeared in three weeks, and the dose of mercury was reduced. This was soon neglected, as the tongue no longer caused any annoyance, and he was not seen for five weeks, when a new patch had developed on the left side, in contact with a decayed tooth. In addition to an increase of mercury, he was given hydriodic acid, and the affection continued for six months, the plaques ulcerating before complete healing; but now, after several years, no new manifestations have occurred.

The mucous plaque, or, as it is commonly called, the "milk spot," may be seen in either early or late consecutive syphilis and, when observed early in the course of the affection, may immediately follow the initial lesion, before any dermal manifestations have appeared. The early variety, as regards conformation, location, etc., does not differ in any essential respect from that observed at a later period, except that it is more apt to be moist, while those seen later are unattended with much secretion, and present a dry, somewhat glazed appearance. Among its features in this location is the decided tendency to recurrence, and its contagious properties; duplicating itself whenever in contact with adjoining mucous surfaces, and readily being transmitted to other individuals.

Another feature of interest is the obstinate character of the patch, rarely, despite the most energetic medication, healing in less than two months, and more frequently appearing at intervals over a period of from four to six months, or even longer. Appearing first as small, red areas, single or multiple, they become covered with a pearly pellicle, and may remain in this state for a long time until the pellicle becomes detached and is replaced by an ulcer. Appearing at points of greatest irritation, there is a consequent tendency to ulceration; but the ulcer is limited, does not destroy the adjacent tissues to any extent, and heals, leaving a cicatrix, the presence of which, should tertiary lesions develop and the history of the case not be obtainable, may aid in making a correct diagnosis.

Later in the course of the disease, we find the gumma in its non-ulcerative form, the following case illustrating this condition when the tongue is involved.

Mrs. C. D. Age twenty-nine years. Was seen October 28, 1896, complaining of severe pain at the base of the tongue for about six weeks. Previous to this she had noticed a lump on her tongue for several weeks, which gave her no inconvenience. Eleven years previously she had a chancre, and six months later a general dermal eruption, for which she received medical advice. Her first pregnancy resulted in a miscarriage, but following this she bore two living children, one dying in a short time, the other now living and giving no evidence of syphilitic taint. Examination of the upper respiratory tract revealed nothing of interest except the tongue, in the tissues of which was embedded a gumma, one-half inch in diameter and somewhat elevated above the surface. It was situated on the dorsum, near the base, and in immediate proximity to the median raphe. Capping the top was a small ulcer, showing epithelial erosion from irritation and not destruction of tissue, as occurs later. She was placed under mixed treatment and in a few weeks the tumor had disappeared.

Gummata of this region make their onset in such an insidious manner that often the patient is unaware of their presence until ulceration results. Starting as minute points, they progress slowly; are ovoid, painless and usually multiple, but are frequently seen as single or isolated growths. The mucous membrane covering is tense and reddened, and, as active changes occur, breaks down, forming an ulcer. Unlike the mucous patch, this manifestation of syphilis is not as readily diagnosed and the history of the case, with the results obtained by treatment, may be necessary before the true nature of the enlargement becomes apparent. When seen early, the use of iodid of potash, in rapidly increasing doses, will speedily cause the total disappearance of the gumma, while if not promptly recognized, extensive destruction of tissue results, as illustrated by the following case:

J. R. Male, aged thirty-nine years. Was seen April 24, 1897, complaining of a bad sore throat of two weeks' duration. He stated that he was subject to attacks of sore throat, the last previous to this having occurred one year ago; but no attack had been as severe or lasted so long as this. His general health was poor, and he would not acknowledge a specific history. The anterior pillars of the fauces and the uvula were a brick-red color, the vessels were injected, and on the right side of the uvula there was a small, excavated ulcer. Both tonsils had entirely ulcerated away, and, occupying their former position, was a foul, cream-like mass, which was in great part removable with forcible spraying. The anterior pillars were intact in their continuity, while the posterior were inflamed and adherent to the pharyngeal wall, considerably narrowing the faucial opening. The diagnosis of gumma of both tonsils was apparent to even superficial examination. The parts were thoroughly cleansed with an alkalin solution and dusted with calomel, the patient in addition receiving large doses of potassium iodid. Four days later he was much improved; the pain had dis-

appeared, congestion had markedly diminished and the white, pultaceous mass had disappeared on the left, while the involved area on the right was considerably smaller. The destruction continued, however, for several weeks, but not enough to impair seriously the functioning power of the parts.

The development of a gumma, with its attendant ulceration, usually occurs several years after the appearance of the initial chancre, and, when destruction of tissue is well under way, frightful ravages are made. The tissues, both hard and soft, disappear within a comparatively short time, and, in individuals already depressed from previous illness, the destructive tendencies almost equal those seen in malignant disease. Caries and necrosis frequently exist and sequestra are formed, while, in rare instances, vessels are opened and fatal hemorrhage may ensue. The ulcerative process may involve adjacent organs, and death has occurred from direct extension to the brain or spinal cord.

Active interference, unfortunately, must not cease when the ulcerative processes are brought under control, as adhesions form in the majority of instances, oftentimes with serious consequences, not only to the respiratory function; but deglutition may be impaired, and repeated operative intervention be required. When the history of syphilis is denied, and all manifestations of the disease have disappeared, changes of the oro-pharynx, and especially of the tongue, will often show that the affection has existed, and a study of this region will enable one to diagnose obscure symptoms, which would otherwise not be recognized.

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Treatment of Indolent Ulcers. Marcuse describes a method of treatment for troublesome ulcers of the leg which he has found more efficacious than elastic bandages or sticking plaster. In cases of large ulcers which have been neglected for a long time, and are constantly pouring out a copious secretion, or callous ulcer with sharp indurated edges, the author has found that the application of wet bandages moistened with Burrow's solution, subsequently followed by the zinc glycerin glue, has an excellent effect. The composition of the solution is as follows: Alum pulv., 5.0; plumb. acet., 25.0; aq. distil., 500.0. A more convenient form for use in general practice would be: Alum, 10 parts; plumb. acet., 50 parts; both powders to be well mixed in a liter of water. The application of this lotion is found to have an astringent action on the ulcer without causing dryness. It is antiseptic, and lessens tension and pain. The moist warmth in the case of the callous ulcer has a powerful effect in lessening the induration and improving the general vascularity of the part. The patient should be kept in bed for some weeks. The method of application consists in cutting a large piece of ordinary gauze dressing, so that the skin for several inches round the ulcer is covered. The gauze is moistened with the lotion and then applied, the whole being covered with gutta-percha tissue. After a short time sulphate of lead is precipitated.

SELECTIONS.

DIET DURING PREGNANCY AS A PREVENTIVE OF DYSTOCIA AND FOR THE DETERMINATION OF SEX.

BY EDWARD PREBLE, M.D.,
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WITHIN the past decade two systems of diet have been perfected by experts, the one by Prof. Schenk, the incumbent of the Chair of Embryology in the University of Vienna, the other, by a practical obstetrician, Prof. Prochownick, of Hamburg; with the design of controlling, respectively, the sex of the child and its size at term. These innovations are not only startling in their originality but have apparently been productive of practical results; yet Prochownick is almost or quite ignored in recent systematic works on obstetrics, and hardly any literature has sprung up about the subject—indeed, it would puzzle the average obstetrician to lay his hand upon Prochownick's original article without a day's search, and as for Schenk's views, the medical man has undoubtedly, in most instances, learned of them through the daily press.

These schemes of diet have no relationship with each other, yet they coincide in requiring highly nitrogenous food. They do not in any way conflict with or overlap each other, because Schenk's diet belongs to the early and Prochownick's to the late months of pregnancy. Schenk's discovery was due to a chance observation, viz.: That normal glycosuria was much more common in women than in men, and also that diabetic women, as a rule, bear female children. Prochownick, on the other hand, was in search of a substitute procedure for premature delivery in narrow pelvis. Might not a child go on to term and have its nutrition so modified that it would possess the viability of a seven-and-a-half months' fetus? A search into literature yielded nothing to Prochownick. The various starvation diets, venesections and other depleting measures of previous centuries, which were intended to simply starve the fetus with a view of forestalling dystocia, are not to be compared with Prochownick's diet, which denies to the fetus nothing which it actually needs, but simply keeps off an excess of weight, of liquids and fat, which is habitually present, but by no means indispensable. Prochownick, therefore, announced that, as far as he was aware, the credit of the idea of a rational anti-dystocic regimen should be awarded to him. I find, however, that he may be both right and wrong in this claim. One Rowbotham, a chemist of London, impelled by two dystocic labors of his own wife, placed her upon a diet which sought to exclude those mineral ingredients which go to make up the osseous structures. This diet consisted largely of substances containing vegetable acids (apples,

oranges, lemons, grapes), which were intended to prevent the precipitation of the earthly salts. In the labor following there was no dystocia, and Rowbotham is said to have been so impressed that he reported the case in a small pamphlet published in London in 1841.

I have never obtained access to this work, and my only information bearing upon it is extracted from the "popular" medical book entitled "Tokology" (revised edition, Chicago, 1898). This book enjoys a considerable vogue among women, almost entirely because of the easy labor promised to all pregnant women who carry out "Rowbotham's diet" during the last two months of gestation. Prof. Prochownick, if familiar with Rowbotham's teachings, would most probably radically disapprove of the principle involved, and would class this form of diet with the starvation regimens of earlier days. There is some superficial, as it were, accidental resemblance between the two plans. In Rowbotham's case the pastry and puddings, and such fattening food, were replaced by the diet of fruits, thus eliminating much of the ordinary carbohydrates, yet no attempt was made to cut down the fluids, a cardinal point in Prochownick's diet. Rowbotham's patient seems to have done largely without any animal food, eating (aside from the fruits) small quantities of bread, rice and potatoes, while Prochownick's diet is notably a nitrogenous one. Both diets agree in the fact that they are not to be entered upon until during the seventh month of pregnancy. All in all, we see no reason why Prof. Prochownick should not receive full credit for his efforts, and, as will appear later, the results from his plan have been uniformly good in about fifty cases of labor occurring in women whose previous labors were notably dystocic.

Prochownick's original article appeared in the *Centralblatt für Gynäkologie*, 1889, No. 33, and is entitled "Ein Versuch zum Ersatze der Künstlichen Frühgeburt" ("An Attempt to Replace Artificial Premature Delivery"). A very full abstract of this paper is here appended; which includes a resumé of the conditions which led Prochownick to devise and carry out his diet.

Prochownick says that the question of the advisability of artificial premature labor has been debated for about a century, and is still far from decided. Spiegelberg argued against the operation, and a period of adverse judgment followed, but in more recent years Dohrn, Korn, and Fehling have attempted to justify the procedure. Fehling especially has been able to show by statistics, and, in particular, by statistics which refer to repeated confinements in the same women, that artificial premature birth is feasible, and he has gained numerous supporters. Nevertheless, there are many opponents to the views represented by Fehling, and especially among practicing physicians. The latter do not lay the most stress on the improved chances of the mother, but on the prospect of survival of the child. The prognosis for the child is still admittedly bad. While we have not at present a large statistical material to demonstrate the absolute truth of this statement, every practitioner feels dissatisfied on this score. Children may survive the

direct experience of birth, but many die of secondary mortality or show evidence of imperfect development.

The hoped-for improvement from Cæsarean section does not appear applicable to moderate degrees of pelvis narrowing—the chances of survival are such as must necessarily awaken scruples.

Is there no other way?

Fehling, in his excellent study on artificial premature delivery in Müller's "Handbuch der Geburtshilfe," 1889, Bd. III., marvels that the operation was never incorporated into obstetrical practice from simple observation of nature. When the woman with contracted pelvis, overtaken by premature labor, can give birth successfully, how is this brought about? Because the children are smaller and leaner, with bones more tender and more susceptible of moulding. Cannot this favorable condition of the fetus be brought about artificially and labor still go on to term?

Prochownick first received this suggestion in 1887. He was to confine a woman for the fifth time. The four preceding pregnancies had ended respectively in perforation, version, artificial premature delivery (twice). None of her children had survived. When she had become pregnant for the fifth time, confinement due on September 18th-22d, he placed her, on August 1st, upon a special diet, much like that for diabetes, excepting that the abstinence from fluids was even more strongly insisted upon.

The diet was as follows:

MORNING: Small cup of coffee and about six drachms zwieback.

NOON: Any kind of meat, eggs and fish with very little sauce. Some green vegetable with fat added. Salad, cheese.

EVENING: As above with addition of $1\frac{1}{2}$ ounces bread and as much butter as desired.

To be entirely avoided: Water, soups, potatoes, cereals, sugar, beer.

Fluids per day limited to 12 or 15 ounces red or Moselle wine.

The confinement occurred September 20, 1897. Breech presentation—little help required on part of physician. Child female, weight 2,530 gm. (5 lbs.), 50½ cm. long, lean, bones firm, bones of skull hard, yet freely movable. No lanugo hair, but abundant long head hair. Panniculus adiposus everywhere slightly developed, although the osseous system had not suffered. Head circumference, 32.8 cm.; long diameter, 10.0; transverse diameter, 8.2. Large fontanelle, 2.4 long. Breadth of shoulders, 11.4. Child did splendidly on the bottle, fed like a perfectly mature child (250,-280 gm. weekly), still lives, is healthy, free from rickets and has recovered from several of the diseases of children.

During the past year (1888) Prochownick had another opportunity to test his diet in a very similar case, while during the present year a third case—in a very near relative—ended happily.

Summing up, Prochownick says that in the first two cases he brought about normal delivery at term purely by dietetic measures, both patients hav-

ing had very bad records as parturients. In neither case had the child suffered from the restricted diet of the mother, the bones being notably in normal condition. Children previously borne by the two women were above the average in weight and had a marked development of subcutaneous fat.

In the pregnancies, while upon the special diet, the amount of amniotic fluid was small. Prochownick again emphasizes the fact of the extraordinary capacity of the skull-bones for moulding.

The third patient had a rachitic pelvis, but no history of dystocia—probably a primipara, but this fact was not stated. Her case was equally successful, but the result was naturally less impressive than that in the previous cases, both of whom had repeated unsuccessful terminations to their labors.

Prochownick states that this simple management requires only a little will power on the part of the mother. Despite the smallness of the published material, he feels satisfied that he has devised a valuable measure for the avoidance of artificial premature delivery.

A search in literature from antiquity to the present time appeared to show him that he is entitled to the sole credit for the dietetic management of dystocia of a certain kind and degree.

We further append an abstract of an article by Horn, which gives the status of Prochownick's diet up to the present year. Horn's article occurs in the *Monats. f. Geb. u. Gyn.*, VIII., and is entitled "Ueber die Erfolge de Prochownickschen Diät . . . bei engem Becken" ("Success of Prochownick's Diet . . . in Narrow Pelves").

Horn describes the disadvantages of Cæsarean section, symphysiotomy, perforation and induction of premature labor for both mother and child. Premature delivery gives the most favorable figures, the mortality of the mothers being only slightly higher than in normal delivery. The mortality of the immature child is high. Therefore we are justified in attempting to improve the statistics of labor in narrow pelves up to the point of equality with those of normal labor.

In the beginning of this century it was attempted to influence the nutrition of the fetus in utero by venesection, purgatives, and scanty diet; and some of the opprobrium attached to these procedures will be transferred to the procedure inaugurated by Prochownick; but there is a great difference between the unscientific efforts of that remote period and the physiologically sound plan of Prochownick. The degree of success attained by the latter is sufficient argument for the soundness of his theories. Up to the present time Horn finds the following record of successful cases:

Prochownick, 13; Sureicki, 4; Hoffmann, 3; Haspels, 4; Josephson, 2; Brehm, 1; Eisenhart, 1; Donath, 1; Van de Poll, 1; Leusser, 1; Florschütz, 3; Reijenga, 9. To these 43 cases Horn adds another, while Hucklenbroich recently reported three cases, the total material to date comprising therefore 47 cases. Of this number *not a mother nor a child was lost*.

Of the 47 cases there was but a single possible failure—Prochownick's eleventh case, an account of which was furnished to Horn; in this case the woman was very fleshy, and gained 22 pounds during the pregnancy. The diet in this case evidently failed to prevent the fattening of the child. However, the woman persevered with the diet during her next two labors, and the result was completely satisfactory, as she did not again take on fat during the pregnancy.

Horn's case is as follows:

Patient, age thirty-six, four-para. General narrow pelvis. Previous labors, 1. Forceps, severe case. 2, 3, Artificial premature birth—both children died.

Began diet between six and seven weeks before expected confinement.

Spontaneous, easy labor. Length, 55 cm. Weight, 4,100 gm. (8 lbs.) Placenta, 550 gm. Good amount of liq. amnii.

Notwithstanding the good practical results, the child was quite plump. This paradox is explained by Horn as follows:

The fetus should have weighed about 4,000 gm. at the time the diet was begun. The woman was in poor circumstances and her usual diet consisted of the very foods most interdicted by Prochownick (soups, potatoes, bread, etc.) ; the child, therefore, was well under the influence of this ordinary regimen and Prochownick's diet, begun at the late day, could only keep the child's weight from further increase.

Difficulties in carrying out the diet are expense, necessity of strong will on part of the patient, and choice of right time. In lying-in institutions, patients have to be isolated at meal-times. Hardest of all is the abstinence from fluids, especially during the early days.

In the discussion which followed the reading of the paper, attention was called to the fact that tuberculous mothers and victims of hyperemesis incoercibilis had often borne plump children. Horn rejoined that Prochownick's diet was not a starvation diet. The tuberculous mother received an abundance of water, and carbohydrates were not forbidden. The cases are too dissimilar for comparison.

In answer to a question about the sex of the child under the diet, Horn replied that no influence in this direction had been noted.

Horn further claimed that pains were better under the diet, because the latter prevented the formation of interstitial fat in the myometrium.

Schenk's discoveries can never be incorporated into routine obstetrical practice on account of the great number of quantitative urinary analyses involved. The rationale is extremely simple. In the first place, it is a fact that very many individuals, particularly women, and especially women who are near menstruation (just before or after), excrete sugar normally in such minute quantities that it requires especially delicate tests (phenylhydrazin) to demonstrate its presence. Schenk's experience has shown him that women who do not normally excrete sugar, and especially those whose

sugar may be made to disappear from the urine by adhering to a highly albuminous and fatty diet during the periods of ovulation, impregnation and first three months of gestation (up to the time of the differentiation of sex), are practically certain to bear male children. If the sugar cannot be made to disappear by diet, the chances are in favor of the birth of female children, yet this is not certain—in fact, there is absolutely no plan by which the sex of female children can be controlled.

In conclusion, it can hardly be doubted that in future, diet in obstetrics is destined to play a part akin in importance to diet in obesity, diabetes, etc. There are drawbacks to the popularity of both Schenk's and Prochownick's management. The former requires a year to establish its value in a given case, while the cost of the repeated quantitative examinations and the trouble entailed upon the mother tend to limit its sphere to those of the wealthy, who, above all things, desire male issue. Prochownick's diet, insisting, as it does, upon rigid abstention from excess of liquids, becomes a hardship on the pregnant female who is accustomed to yield to the slightest craving in dietetic matters; and has, besides, to compete with many rival plans of treatment for dystocic conditions, especially symphysiotomy, which operation has been revived since Prochownick first set forth the principles of his diet. Despite these drawbacks, we have little doubt that the question of diet in obstetrics will shortly discover its proper field of usefulness.—*Obstetrics.*

Microcidine. McKay (*Intercolonial Med. Jour.*, Mar. 20, 1899), as a result of 3 years' use, praises this agent as a germicide in obstetrical work. It is used in the strength of $\frac{4}{1000}$ as a vaginal or intrauterine douche. The advantages claimed are: (1) It is not toxic; (2) it does not coagulate albumin; (3) excepting aluminum, it does not attack instruments; (4) as a germicide it ranks next to bichlorid; (5) its solutions have an oily feel. It is prepared by dissolving 1 part of caustic soda in 2 of water. To this is added 2 parts of naphtha B, and the fluid evaporated. The solid microcidine thus prepared is stored in dark-colored bottles.

Artificial Abscess in Pyemia. Forchier, in Vienna (*Corres. Med. Press and Circ.*, Apr. 5, 1899), continues to recommend this novel mode of combating septic conditions. Two drachms of oil of turpentine are injected into the calf of the leg. The irritation produced culminates in the formation of a large abscess, which it is advised to speedily open. While it is apparently of greatest value in abscesses about the genitals, abscesses in connection with typhoid, erysipelas, osteomyelitis, pneumonia, etc., have, it is claimed, been also treated thus with very favorable results. From the time of the turpentine injection the pyemic signs are said to cease, and the recovery of the patient, without relapse, follows.

TALKS TO GENERAL PRACTITIONERS.

THE MOST IMPORTANT REQUISITES TO A CORRECT DIAGNOSIS IN CHRONIC DISEASE.¹

BY BOARDMAN REED, M.D.,
of Philadelphia.

ALL the chronic diseases that result in much impairment of nutrition, whether the patients be infants or adults, have many symptoms in common. They are for the most part characterized by debility, poor digestion, more or less anemia, disturbed cardiac action, insomnia or broken sleep and derangement of the bowels in the direction of either constipation or diarrhea.

Symptoms alone, therefore, are not conclusive as to the diagnosis. There is often, to be sure, some one symptom—such as the rapid or embarrassed breathing of severe lung troubles, the jaundice observed in obstructions of the bile ducts, and the peculiar cachexia of malignant disease—which, while not really pathognomonic of the involvement of any one organ in a definite manner, may yet point pretty surely either to the region involved, or else to the general character of the affection.

Many of you have made the diagnosis of locomotor ataxia and of spastic paraplegia by the gait alone, as well as that of arterio-sclerosis by the tortuosity of the temporals. Yet it is not wise to follow the example of those quacks who claim to be able always to diagnosticate the diseases of their patients without examining them and without asking a single question, notwithstanding that such a hasty diagnosis, when proved to be correct, rarely fails to make a prodigious impression upon both the patients and their friends.

In the long run, it will be far more politic, as well as more honest and scientific, to obtain the fullest possible history of the patient, with the salient points of the family history, and then to make an exhaustive physical examination. In this way only can the best results be accomplished. Even when there is apparently a manifest cause for the symptoms, such as syphilis or advanced tuberculosis, at any age, or rickets or enterocolitis in childhood, it will be safer to take nothing for granted, but, in all serious cases at least, to go carefully over the entire body, including certainly the liver, stomach, spleen, heart and lungs, and in addition to test the more important reflexes and the urine. Whether you should also obtain specimens of the blood, and of the stomach contents after a test meal, for qualitative and quantitative determinations of their condition, must depend upon the nature of the case. In obscure chronic states of ill health, a blood

¹ Read by request before the Academy of Medicine, Atlantic City, N. J., June 9, 1899.

count and estimation of the percentage of hemoglobin are always desirable, even if not always indispensable. When there is any question as to the existence of malaria, it should be settled positively by a microscopic examination of the blood for the plasmodium. To inflict upon patients a course of full doses of quinin as a therapeutic test is rarely, if ever, justifiable nowadays, since it is unnecessary, and often does harm.

As to the stomach, it is a regrettable fact that not only many excellent practitioners, but also consultants, fall far short of their duty when this organ is concerned. It is true, of course, that time often fails for a full and thorough investigation, according to modern methods, of all the organs that are open to suspicion; and it is also true that patients are not always willing to pay even much less than proper fees for a part only of the examinations that our whole duty would require us to make or to have made. Some must often be omitted for one or both of these reasons. But, when a patient has already suffered long and been medicated persistently and unavailingly on account of symptoms pointing more or less directly to the digestive organs, there can be no adequate excuse for neglecting longer to interrogate these by the exact methods which are now at our command. The same is true of even stubborn cases of neurasthenia that do not, within a reasonable time, yield to treatment addressed to the nervous system, since a considerable proportion of such cases result directly from the malnutrition produced by gastro-intestinal disease, especially when several of the abdominal viscera are dilated or out of place.

I have seen numerous wretched invalids who had undergone examinations by prominent men, taken one or more rest cures, and, in a number of instances, had the benefit of treatment at foreign spas during periods of bad health lasting for years, without ever having had even one test made of their stomach contents, though, as the event proved, they were suffering from an acid gastric catarrh with such an enormous excess of HCl as to have damaged seriously the mucous membrane of the intestines. Several of such patients, who had for an equal length of time been taking medicines from various able physicians, were found to have been afflicted all the while with the group of symptoms very common in women, especially (though often met with also in men), known as enteroptosis or Glenard's Disease, in which a number of the viscera, including usually one or both kidneys, the stomach, transverse colon and small intestines, have prolapsed, with the result that there has nearly always developed stubborn constipation with many aggravated nervous derangements, besides marked anemia and malnutrition, dependent probably upon the disturbed relations of the intra-abdominal organs and the abnormal traction upon various nerves and nerve centers. This condition in most of the cases had not been recognized.

And yet these displacements, as well as the dilatations of the stomach and colon that often form part of the same symptom complex, may generally be diagnosticated at the present day without the help even of a stomach

tube, as I fully pointed out in a paper on this subject nearly four years ago,² and again in my talk in the INTERNATIONAL for January, 1899.

In mapping out the boundaries, especially those of the stomach and colon, the simple methods fully described in the articles just referred to will yield accurate results in nearly all cases without a resort to any intragastric appliances. With the help of inflation by means of carbonic acid gas, liberated in the usual manner by a solution of sodium bicarbonate, followed by one of tartaric acid, and with the use of the now familiar auscultatory percussion and auscultatory friction—both described in the talk above mentioned—the task becomes a comparatively easy one.

The appendix should be palpated and its condition and position determined in every thorough exploration of the abdomen at the same time that the position of the kidneys, stomach, etc., is made out, since it is often found to be enlarged and tender on pressure as the result of a chronic catarrhal process, especially when there is, or has been, much catarrh of the colon.

The tongue, even though silent, may tell us something concerning the health of the alimentary tract, but it is often misleading. It may be clean with a diseased stomach, or *vice versa*, but is rarely much furred without at least a disturbance in the tract somewhere. It probably reflects more accurately the condition of the duodenum than that of either the stomach or liver.

Never fail to examine the teeth. The German proverb, "Gut gekaut ist halb verdaut" ("Well chewed is half digested"), is true as Gospel, and a patient cannot well chew without good teeth.

The condition of the nose and throat is of prime importance, in children especially, since in them stenosis of the nares causes mouth-breathing, and serious impairment of the health may follow; but even in adults catarrhal affections of the upper air passages often eventually progress by continuity of tissue to the esophagus, stomach and duodenum, if not, indeed, to the entire alimentary canal. It is rare to see a stubborn old case of dyspepsia in which there is not chronic nasal catarrh as well, and very often a catarrh of the stomach is already demonstrable when the case comes under treatment.

The state of the ears does not, as a rule, have an important bearing upon the general health, but the eyes are deserving of more attention from clinicians generally than they receive. Variations in the field of vision may point to hysteria, retinal changes to Bright's Disease, diabetes, meningitis, apoplexy, intracranial tumors, and the reactions of the pupils to light and to accommodation in connection with absent knee-jerks are diagnostic in tabes dorsalis: while defects of accommodation, by causing eye-strain, probably rank next after indigestion and lithemia in the etiology of headaches, insomnia, and many otherwise obscure nervous phenomena.

² "The Diagnosis of Changes in the Size, Position and Motility of the Stomach, in Cases where Intra-Gastric Instruments cannot be Used." Medical News, January 18, 1896; and Berliner. klin. Wochenschr., 1896, No. 43.

The rectum, prostate gland, urethra, bladder and the uterus and its adnexa are of less vital importance than a number of other organs, but should be examined when the symptoms point to them as probable offenders. It is worthy of particular mention that the uterus will nearly always be found to be displaced whenever the lower boundary of the stomach, as a result of either ptosis or dilatation, is much below the level of the umbilicus. This is simply a consequence of the prolapsed colon being almost universally pushed down still lower by the abnormal pressure from above. Either the stomach or colon may rest directly upon the uterus, especially when full.

There should, of course, be a careful inquiry into the condition of the heart and arteries in all cases of chronic disease, especially when there is an abnormal pulse or any symptoms referable to the circulation; and the lungs would naturally be gone over thoroughly whenever there is chronic cough or dyspnea, but they should never be neglected in any pronounced case of emaciation, debility or anemia. The microscopic examination for tubercle bacilli is important, but it is more important still to be able to recognize a tubercular deposit in the apex in an early stage before the bacilli can be demonstrated, and when, by means of the prompt institution of the proper hygienic treatment, a cure can usually be promised.

The skin is by no means a negligible quantity. In children especially it is to be most carefully scrutinized all over, and in many puzzling cases of obscure chronic disease in adults an examination of the entire surface of the body with all the coverings removed, part by part, would conduce much to a solution of the difficulty.

The stools are usually inspected with much care and regularity in infants and ought to be in older patients, when the liver or any part of the digestive system is at fault. Microscopic examinations of the feces also yield valuable results in numerous cases.

The urine should be examined most carefully in every case of chronic disease, with few exceptions, from infancy to old age, and when it is one of unusual importance, or much obscurity, many more tests should be made than are customary. Next after the tests for albumin and sugar, perhaps the most necessary one is that for indican, and it is very easily and quickly made. That for the aromatic sulphates is no less important, but is more difficult. Either indican or aromatic sulphates in large excess must raise a strong suspicion of intestinal disease. The total amount of solids passed in twenty-four hours is roughly ascertained by a very simple calculation, and affords valuable knowledge as to the renal adequacy. Another unusual test that furnishes most useful and, I may even say, indispensable, information in all cases of malnutrition, whatever the age of the patient, is that for the total acidity—the total amount of acid elements of all kinds, free and combined as salts.

This will be found to vary in neutralizing power in adults all the way from the equivalents of 5 or 10 c.c. to 70 or 80 c.c. of the one-tenth normal

solution of caustic soda in each 100 c.c. of urine. A very low percentage of acids is frequently seen as a result of over medication with alkalin drugs or the stronger alkalin waters. A high acidity, on the other hand, is very often found in consequence of much fermentation in the stomach or intestines. It is usually present before the development of rheumatism especially, and its persistence threatens danger to the system generally through a too great diminution of the alkalinity of the blood.

A determination of the amount of uric acid in the urine of twenty-four hours frequently affords the key which unlocks a difficult problem.

It is scarcely necessary to remind an association of physicians, at this day, that a microscopic examination of the urine is in most cases quite as necessary as the usual chemical analysis, if we would learn the whole lesson that this most important of the excretions can teach us. Even in the absence of albumin, hyalin casts are danger signals at least, while epithelial and granular casts are evidence usually of serious structural lesions. A gonorrhea cannot be certainly differentiated from other purulent urethral discharges except by the gonococci, and tuberculosis of the genito-urinary tract is often revealed by finding the bacilli in the urine. Spermatorrhea, though not as common or deadly as the quacks pretend, is a real disease which is often overlooked, and cannot be demonstrated without the help of the microscope. I recently saw a patient who was verging into melancholia on account of this condition, complicated with hyperchlorhydria and dilatation of the stomach. Besides having spent some months in a large sanitarium and seen a number of eminent neurologists in different cities, he had recently been through two rest cures under physicians of the highest standing, and yet none of these three causes of his depression seemed to have been recognized. The gastric condition surely had not.

In referring to the ability and high standing of the previous medical advisers in this and other cases, I do not wish to be understood as attempting to make invidious comparisons or as indulging in criticisms of physicians most of whom are my seniors, and some of them my attached personal friends, whom nothing could induce me knowingly to injure even by indirection. My thought plainly expressed is, that the most expert and experienced diagnosticians in the world are almost certain to overlook occasionally important abnormal conditions in the abdomen unless specially trained in the recent methods of studying that region, just as most practitioners not trained especially in pelvic work are liable to go astray in that particular field.

This imperfect summary of the most important methods and aids by which an approximately accurate diagnosis can be reached in nearly all chronic diseased conditions pertaining to internal medicine, may seem at first discouraging to us as busy practitioners, since we meet with so many cases in which it is entirely impracticable to avail ourselves of even one-third of them. But not all these examinations are necessary for every case, nor

need even all the appropriate ones in any case be done at one time. It should, it seems to me, be a comfort to us, and a cause of pride in our magnificent profession as well, to know that the helpful possibilities are now so vast that there are few of our most perplexing cases that we cannot finally master.

PRESENT-DAY REQUIREMENTS IN THE MANAGEMENT OF PREGNANT WOMEN.

BY EDWARD A. AYERS, M.D.,

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Most busy practitioners, and all able practitioners, are more than busy, if they try to keep up to date, and are unable to thoroughly sift the conclusions that are voiced by the vast number of papers on any and all topics on practical medicine which now flood the literature of the day. They are, if general practitioners, driven to head-line reading, or abstract skimming; and even then seldom get "court judgment" as to what is reliable and best. Obstetrics has undergone many changes of procedure of late, some of which are still lacking in refinement.

In the care of pregnant women before labor, the most general and remarkable advances have been in the expansion of ante-partum examination and in consequence greater achievement in prophylaxis. There are no opposing parties on these matters. The obstetrician who poses as an expert, and does not employ early diagnosis and prevention, is unanimously regarded as incompetent.

Hemorrhage from placenta previa and eclampsia from—well whatever it may be—are the first dangers that should be given consideration when one is engaged by a pregnant woman. We will not catch many cases of placenta previa by early examinations, or before they declare themselves by a blood show. Many able minds have been busily engaged endeavoring to locate the placenta, with but poor results. Leopold has shown by observations in Caesarean section when the uterus was exposed, that the Fallopian tubes lie more anterior than usual when the placenta is attached to the posterior half of the uterus, and, to a less extent, posteriorly when it is attached to the anterior half.

By the vagina we may sometimes feel the placenta when it is lying over the internal os. Patients with placenta previa should either be at all times (as in a hospital) within the *immediate* reach of a physician, or undergo induced labor.

In the prevention of eclampsia the latest views recognize that the disease is one of possibly special toxin development, but certainly the reten-

tion of poisons that should be escaping from the body through the eliminatives. Hence the practice of testing the urine for the reduction in the amount of urea excreted.

It is assumed, with very general approval, that while urea may not be the eclamptic generator, its lessened elimination bears much the same relation to eclampsia that falling of the barometer does to an approaching storm. Recent text-books, such as Jewett's and Hirst's, give excellent descriptions of the methods of testing the "urea wave."

The older tests for albumin, casts, and reduction in quantity, have lost none of their weight of importance as fore-signs of eclampsia. The most prominent adjuvant in treatment both for a threatened attack and one that supervenes is hot saline solution, or artificial blood-serum. The usual solution employed is a sterilized $\frac{6}{10}\%$ solution of salt in hot water, which can be given most easily by injection into the colon through an eighteen-inch tube, and limited in quantity only by the ability of the patient to retain it.

This solution is now extensively used in cases of severe hemorrhage, and is probably the most valuable article in the nature of a remedy taken up by obstetricians in this generation.

Ante-partum examinations are of great assistance in the efforts we are all making to reduce the evils of mal-positions and dystocia. It is a perfectly conservative statement that fully one-half the improvement in the results from these difficulties is obtained where the obstetrician employs careful and skillful examinations before labor.

Diet has received more attention of late years than formerly, and the recent work of Schenk, who claims that sex can be made a matter of selection, in so far that if sugar shows in the urine a female may be expected, and treatment that excludes all trace of sugar, begun before impregnation, will result in male generation, has accentuated interest. Prochownick promulgated some years ago the claim that dystocia could be prevented by such diet as would lessen bone development and hardening, and fat formation in the fetus. Prochownick's theory has not received the consideration that it probably deserves, partly because it calls for an early observation of cases, which is prevented largely by the bad habit of many patients in delaying the engagement of their physicians for confinement. Schenk's claim has not yet been accepted by our leading investigators, as of course it could not be, for much time is required to test a method that calls for treatment for a *prospective impregnation*.

The numerically most important topic in obstetrics—sepsis—has only recently seen two important changes of view: First, in the matter of prevention, and second, in treatment. It is now accepted that the normal condition of the vaginal area is one of asepsis, and that the secretions are themselves germicidal.

Vaginal douching before or during labor is therefore quite generally not employed. But the introitus and vulvar surfaces are not aseptic and

are not germicidal, hence they should be most carefully cleansed before any examinations are made. The best method of making digital examinations is to cleanse both vulva and one's own fingers, then hold the lips of the labia minora apart while introducing the fingers of the other hand. This method lessens the liability of carrying vulvar germs into an aseptic vagina.

Some vaginae are in a septic condition and should be cleansed; but they should be selected individually for douching and scrubbing, and not cause the clean ones to suffer.

In treatment of puerperal sepsis, we seem to be rather worse off than we thought we were a year or two ago. Anti-streptococcic serum is practically discarded as useless, and no other article can be claimed as of specific value. Blood flushing with saline solution, local surgical cleansing and the old friends of the pharmacopeia are the most that can be mentioned. Peri-uterine packing with iodoform gauze after dissecting the cervix partially per vaginam is being tried, but no opinion can as yet be given upon its merits, its idea being that the lymph channels, the chief means of communication of the septic material with the uterine body and adnexa, are thus closed.

SYPHILIS—THE CHANCRE.

BY J. D. THOMAS, M.D.,

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THE diagnosis of syphilis is a serious and important matter. A patient should never be pronounced syphilitic unless the attendant is sure of his diagnosis. There is no man more miserable than the syphiliphobiatic. He is much more so than the true syphilitic. The most annoying patient one has to contend with is the one who has been wrongly pronounced syphilitic. If an acne spot, an eczematous eruption, or any other lesion, appears upon the skin, it matters not how trivial, he rushes to the physician with the tale that he is now positive that he is a sufferer from the disease. With all one's persuasion, it appears impossible to convince him otherwise. A case in point: A gentleman, a married man, lapsed from the correct path for the first time, and, as he was afterwards very apprehensive and observing, he noticed one day, about a month after the alien intercourse, a few pustules upon his body, when he rushed to a physician, who pronounced it syphilitic, without seeking for the initial lesion, and placed him upon specific treatment. To find a syphilitic lesion upon the skin at this period would be as probable as to find a shining sun at midnight. He shortly afterwards consulted his family physician, who assured him that he had not contracted the disease. To further convince him, his family physician referred him to

another physician and myself for an opinion. That the patient did not have syphilis was plain. Although this incident occurred three years ago, he still haunts my office with regard to his "syphilis."

As a rule, the diagnosis of syphilis is not difficult, especially if observed from the beginning; for the evolutions of the various manifestations are unerring: First, we have the initial lesion; second, the adenopathy; third, the eruption, with the other concomitant symptoms of each step of the disease. Thus it will be seen that the clinical history is important.

The initial lesion of acquired syphilis is the chancre; a lesion that becomes indurated from hyperplasia of connective tissue—this hyperplasia being the result of the irritation set up by the poison (micro-organism) of the disease. The induration is characteristic, the lesion is of slow growth, ten days to three weeks intervening before it is appreciable. The books give us a case as late as seventy-five days. Clinically, such cases can be ignored. In the whole category of diseases there is hardly one that is more uniform in its development than syphilis. In our dispensary work we meet with apparent anomalies; but when the same patients are interrogated at another time we get an entirely different story. The poison enters the system through a solution of the continuity of the body envelope; sometimes through a slit on the corona glandis, produced by a hair, patients believing the slit to be the entire trouble; at other times through a limited abrasion, or the epithelium, during coitus, may be rubbed off of one-half or more of the corona, and, as a result, there will be an induration (chancre) involving the entire abraided surface. Where more than one solution of continuity takes place, there may be more than one chancre (exceptional). The chancre is usually found upon the genital organs; but as it may appear elsewhere upon the body, the fact must always be borne in mind.

The abrasion through which the poison enters very often heals over before the patient presents himself, then we have what is called the indurated papule. If this indurated papule is kept under observation, and no specific treatment instituted, as the piling up process advances, the circulation in the papule is interfered with, and we again have an abrasion or erosion on the surface, so that we have virtually but two varieties of chancre, viz., the non-eroded and the eroded. Now, the eroded chancre can be sub-divided into as many varieties as the observer is prolific in his imagination. There are two varieties, however, of the eroded chancre that are so characteristic that it is well, in this place, to designate them. One is where the induration or infiltration is not deep in the tissues, but occupies the skin mainly, and covers a good deal of surface, as much as an inch in diameter at times, with little or no secretion, but with some scaling, and when the margins are compressed between the thumb and index finger a sensation is imparted as if there was a piece of parchment imbedded in the skin; hence the name—"parchment variety." This variety is usually found upon the integument of the penis or scrotum. The other is usually called the "Hunterian"; a

chancre with the margins markedly indurated and elevated, the ulceration eating down into the little mass and forming a funnel, or V-shaped cavity. This variety is found upon some part of the glans penis.

Chancres, if not irritated, have a limited amount of secretion, the secretion being of a sero-purulent character. Occasionally the chancre is so insignificant that the patient is not aware of its presence. Patients sometimes present themselves with the secondary eruption, and, at the same time, deny the presence of a sore upon the penis. In these cases, after retracting the prepuce, to the patient's surprise, a sore, indurated, small, with slight secretion, would be found in the sulcus behind the corona. In these cases the insignificance of the local lesion is due to the fact that the prepuce prevented undue irritation. When the chancre is situated upon the mucous surface of the prepuce, retraction of the prepuce becomes difficult or impossible; but the chancre can be detected by the induration experienced on palpation, and the small amount of discharge from beneath distinguished it from the chancreoid. It is sometimes months after the beginning of treatment before the prepuce returns to its normal suppleness and can be retracted over the corona.

In the female it is more difficult, as a rule, to get a good demonstration of the chancre. If it is within the introitus vagina it may resemble a mucous patch, moist papule or abrasion. Again, innocuous abrasions within the vagina are frequently met with, so that when specific trouble is suspected close observation is necessary; *e. g.*, Mr. F. came to me, on January 8th, with a sore (chancre) which he had observed for two weeks. On the thirteenth of the same month, he sent his wife. On the latter date my notes say: "On either side, at lower portion of labia minora, an abrasion exists, as yet nothing characteristic. Cervix and vagina free." Mrs. F. was examined again on January 31st, when it was found that the abrasion on the right side had disappeared, while the one on the left side was becoming indurated, and the glands in the groin on the same side were enlarging. When the chancre occurs upon the labia majora, owing to its exposure, and at times want of cleanliness, it may acquire large dimensions. At this location it may assume the size and shape of a butternut, with the surface covered with incrustation. With ordinary care, when the chancre is situated upon the clitoris, vestibule, labia or cervix it can be readily recognized.

When the chancre is extra-genital, and obscure, it may be located by ascertaining at what region the glands have first enlarged, and at this point they may be found exaggerated as compared with the other glands of the body. In one case I was enabled to locate the chancre on the anterior pillar of the fauces by the exaggerated enlargement of the glands on the same side of the neck. The patient had the secondary eruption, but no genital chancre.

If the chancre is under observation from an early period it will be found

that the glands leading to the body from the chancre will gradually enlarge, will be painless, indolent, slightly movable, and, if the patient is informed of his trouble, he will lose in flesh and become somewhat anemic. This is due, in all probability, to shock and worry, for in patients who come for advice with regard to their skin lesion and not knowing its character, we do not find these conditions.

The first period of incubation is that period from the reception of the poison until its effects are observed as a chancre; the second period of incubation follows this, and covers the period during which the lymphatic glands passing from the chancre enlarge, and terminates when the poison enters the blood, which is evidenced by the eruption upon the skin, inflamed fauces, slight elevation of temperature (although it sometimes reaches as high as 104° F.), malaise, etc. If the exact date of the reception of the poison can be ascertained, the eruption will almost unerringly appear *about* sixty days thereafter.

The only local treatment a chancre requires is cleanliness. Cauterization with nitrate of silver, nitric acid, etc., is worse than useless. The only impression that can be made upon the chancre is by constitutional treatment. Excision of the chancre will not prevent infection, and is of doubtful utility.

FUNCTIONAL DISTURBANCES OF OCULAR MUSCLES.

BY WALTER L. PYLE, M.D.,

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Part III.—*Treatment.*

As refractive troubles are the chief causes of heterophoria, in every case the refraction should be examined under a mydriatic and the ametropia correction ordered. In prescribing the correcting glasses, we must bear in mind the muscular condition. If the patient has exophoria and is hyperopic, we order at first a weak correction, hoping to spur the adductors up by allowing some accommodative strain. If the patient has esophoria and is hyperopic, we order a full correction, hoping to relieve all strain on the accommodation and hence on the associated convergence. In myopia, I disregard the muscle-balance in prescribing glasses, and even though the patient is exophoric I never order a full correction for constant use. The strain on the undeveloped accommodation and convergence produces such discomfort that I have long ago given up the theory of full correction in exophoric myopes as impracticable.

In the great majority of cases, esophoria and exophoria disappear or are sufficiently modified by the simple correction of the ametropia to cause cessation of such reflex symptoms as headache, nausea, indigestion, vomit-

ing, and various other nervous phenomena. I cannot too strongly call attention to the necessity of careful and complete correction of any existing astigmatism, incorporated in the lenses for the hyperopia or myopia.

If the general vitality is impaired we cannot expect the ocular musculature to improve, even though the correcting glasses are applied, unless steps are taken to improve the systemic condition. Good food, abstinence from near work, plenty of out-door exercise and tonics are among the measures indicated. Increasing doses of tincture of *nux vomica* after meals seem to do good. If the patient is very weak and debilitated it may be necessary to allow the use of correcting prisms until the general condition has improved. However, in such cases only a partial prismatic correction should be worn, and this must be gradually reduced as soon as possible. Tenotomy should always be a last resort.

Insufficiency of Convergence and Exophoria.—One of the greatest causes of muscular asthenopia is insufficiency of the convergence with or without accompanying exophoria. As already stated, usually the prescription of proper glasses, temporary abstinence from near work, and general hygienic and tonic treatment will suffice to produce relief from the asthenopic symptoms. When, however, these measures do not afford relief, I resort to ocular gymnastics with prisms after the method of G. M. Gould, of Philadelphia.

Patients suffering from insufficiency of the interni are chiefly persons whose habits and occupations cause excessive use of the eyes. The intense headaches and gastric neuroses accompanying this defect call for a special mode of treatment. To prescribe prisms is only affording a crutch and encouraging the insufficiency. Permanent cure can hardly be effected by such treatment. The principle of tenotomy in exophoria is to weaken a strong or normal muscle to such a degree that it will be equally insufficient with its defective fellow. Such treatment as this can hardly increase the adducting power, the deficiency of which is at the root of all the uncomfortable symptoms. Advancement of the interni does not secure increased innervation.

The skepticism as to the value of ocular gymnastics in cases of insufficiency of adduction is largely due to the fact that the treatment has not been carried out rationally and systematically, and we especially call the student's attention to the proper *modus operandi*. For minor cases the "thumb exercise" is of value. This consists of exercising the convergence by drawing a thumb gradually toward the bridge of the nose, meanwhile trying to maintain a single image of the finger. The thumb should be withdrawn immediately when diplopia results. This exercise should be repeated a dozen times at each exercise, and the exercises should be used several times daily.

The more important method is that by *graduated exercise in overcoming successively higher prisms, bases out*. The following is the usual mode of treatment: The amount of exophoria is noted, the abduction and adduc-

tion is then measured, followed by the measurement of the convergence-stimulus adduction. This is obtained by coaxing the patient to overcome as strong a pair of prisms, with the bases out, as possible in the following manner: A pair of prisms just a little stronger than the normal power of adduction are placed in the trial-frames; these will, of course, cause diplopia for the distance, but not, as a rule, at the near point. The patient is then requested to fix his gaze on a mark made on a card (a cross or a dot seven or eight mm. in size), which is held at the reading distance or nearer. The card is then gradually withdrawn to a small gas-jet, the size of a candle-flame, about six meters from the patient's chair, the patient endeavoring and being encouraged to maintain a single image all the time. When this point is reached, the patient can transfer his gaze and fuse the double image of the flame instead of the mark on the card. This maneuver is then repeated with stronger pairs of prisms until the limit of adduction is reached. It will generally be found that a pair of 8° or 10° prisms is as much as can be overcome at first, but if the exophoria is not too great, it is seldom that, after a few trials, a patient cannot fuse the image of a candle-flame at twenty feet with this handicap.

The examiner should then prescribe a pair of prisms, bases out, suiting the strength to the indications, giving slightly less than the full amount of adduction. It is of great importance to have the prism set in a well-adjusted interchangeable prism-frame. The patient is instructed to place himself twenty feet from a flame, and endeavor to fuse the double image; if, as is usual, it is impossible for him to fuse at this distance, he must approach the flame until he gets the single image, then walk backward, keeping his gaze steadily fixed on the flame, until he reaches his starting-point. This is much more difficult for the patient than having some one withdraw the marked card from the near point to the flame; so that whenever feasible it is preferable to call in the assistance of a second person, particularly in the earlier days of this treatment. This assistant, unfortunately, is not always available. If the image is still single, the patient is told to hold it steadily so for about a quarter of a minute, then to raise the glasses and gaze at the flame with naked eyes for the same length of time, and repeat this ten or twenty times three times a day. The patients are instructed to continue this exercise for a week. During the first few days, complaint may be made that the exercise is difficult and tires the eyes, but before the week is over it becomes easy. At the next visit the strength of the prisms is increased and the exercise continued at home, and at each succeeding visit an addition of about five degrees may be prescribed until the patient can, without the slightest trouble, overcome a pair of 25° or 30° prisms. Patients can sometimes be educated to overcome a combined prism-strength of over 100° . In such cases the ability of convergence is remarkable. An arrangement may be effected with an optician to lend prisms and make the necessary changes for a very moderate charge, and the

patient is thus saved the expense of buying a whole outfit of glasses that would be useless to him after a few weeks.

In moderate degrees of *exophoria*, or in cases in which there is no *exophoria*, but a lack of power of convergence, the symptoms disappear after the second week; but this is no indication to stop treatment, for, unless the adduction is forced up to 50° , or 40° at least, the trouble is likely to return; if the patient can overcome a pair of 25° prisms, the cure is probably permanent. The higher the degree of insufficiency, the more necessary does it become to force up the power of convergence.

Insufficiency of adduction is not necessarily accompanied by *exophoria*; it is not usual, but still quite possible, to find a lack of converging power in cases of *esophoria*.

Occasionally even a case of divergent strabismus may be cured by prism exercise; but a partial tenotomy of the external recti, one or both, may accelerate the cure and save much valuable time. It is a safe rule to follow, never to over-correct by a tenotomy, and to follow up the operation immediately with prism exercise—"not to wait for the tenotomized muscle to unite in its new position and later on contract, but stimulate the internals to fight and push their advantage to victory while their opponents are nursing their wounds." (Bennett.) Much, however, can be done without operation, and many a nervous woman will go through months of treatment rather than submit to the slightest cutting procedure.

It often happens that in cases of *mixed muscular defect*, by correcting the ametropia and properly exercising the adduction with prisms, not only is the adducting insufficiency remedied, but general muscular balance is restored and all the asthenopic symptoms relieved.

Esophoria.—As we have no stimulus for bilateral divergence in the human, prism-exercise is of little avail in *esophoria*. Besides the attempt to strengthen to any marked degree the abductors, which have no such important functions as the adductors in the convergence for near work, would hardly be of use. The great trouble is generally with the adductors. They are on constant tension usually on account of uncorrected hyperopia, causing ciliary strain. The rational treatment of *esophoria* is to suspend the ciliary spasm. As a rule, if taken early enough, the proper correction will afford relief. Sometimes it is necessary to keep the patient under atropin-mydriasis for several weeks. I have prescribed over-correcting glasses for near work with success. Happily, extreme and intractable cases are rare. If such occur, partially correcting prisms, bases out, may be resorted to, and, as a last resort, we have advancement of the external recti or tenotomy of the internal recti.

Hyperphoria is usually relieved by the proper glasses, and the general treatment prescribed in the cases of *exophoria* and *esophoria*. In the very rare refractory cases it may be treated by correcting prisms, base up or base down, ground in the ametropic correction, or by tenotomy. However, it is

not uncommon to find that hyperphoria increases when it is corrected by prisms. Tenotomies are often unsuccessful, as the hyperphoria may return after a few months. In fact, most cases are better without prisms or operation.

SUMMER COMPLAINT.

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THE terrors of summer diarrheas, with their fatal effects, annually confront both physicians and mothers, who are then eager to learn of whatever new thing holds out hope for the limitation of the ravages thus wrought. The causes are pretty well known and have to do almost entirely with the ingestion of faulty foods, especially cow's milk, and affecting the susceptible organism of a feeble child, of temporarily lowered resistance. Hence the lines of treatment are essentially preventive and the disorders almost altogether preventible, and we may look forward to a time when they will cease to prevail.

The milk of the mother is sterile when taken directly into the infant's mouth from the nipple, and is only rarely unsuitable in other respects. While acute gastro-intestinal disorders occasionally do arise during, and possibly due to, the use of breast milk which contains toxins, it need not enter into our discussion here. Infants fed on the breast for even a limited portion of their lives are distinctly better fortified, than those who have not enjoyed this advantage, to resist the effects of improper artificial feeding.

The continued use of certain foods predisposes the infant to attacks of summer complaint, and weakens its capacity to regain tone. In the case of an infant fed on condensed milk, even though it had thriven well, it is said by those of large experience that, if diarrheal disease be once established, a fatal result may be uniformly expected.

A most important predisposing cause of susceptibility is the very obvious one, too often overlooked, of gastric irritability set up by the injudicious manner of administering foods—in irregularities as to intervals and amounts. Whenever the minimum temperature in the day reaches and remains at 60°F. or above, we may expect the prevalence of gastro-intestinal disorders. These will occur most commonly among the poor, because they give less attention to the care of foods, in preservation and preparation; also among them practically immune, healthy, breast-fed infants are allowed freer access to accidental infection acquired by dirty surfaces on which the baby lies or crawls, whence frequently dangerous toxic agents are conveyed to the mouth.

However, we assume that all these facts are known, and will proceed to offer a few simple hints as to cure. First, the babe must be given no milk whatever for at least two days. Next, the intestines must be cleansed of

food remains and other toxic agents and culture media. The temperature conditions must be corrected promptly, when high, by baths, etc., or, when low, by external heat. In the accomplishment of all this medicines play a very limited part, the most important one being brandy. Finally, there remains the gradual upbuilding of the impaired nervous system, blood and circulation, gastric and intestinal mucosa and many cellular perturbations demanding nutrient restoration.

There are two varieties of summer complaint due to the same causes: The acute form resembling Asiatic cholera, swift and overwhelming, accompanied by constantly recurring vomiting and purging to the point of collapse often; at one time the temperature may be quite high and soon after subnormal; the whole attack runs its course in a few hours, or a few days at most. The second form is slower in its beginning, more insidious, more fatally undermining to the vitality; catarrhal symptoms grow more marked; the digestive juices lose their power, emaciation progresses; circulatory vigor wanes, and with it the blood deteriorates; the nervous forces ebb away, and too often, before the gravity of the situation is appreciated, the infant has sunk too low to be restored.

It is well at the outset to wash out the stomach and bowels, although if the vomiting has been extreme the stomach washing may be omitted. However, to apply to the stomach bismuth through the tube is often most quieting to an afflicted organ retching violently. Remember, too, that bismuth is of value in proportion as it is a finely comminuted powder, and that it makes less difference as to its other properties. A teaspoonful may be mixed in a pint of sterile water and run in and syphoned out.

The bowel should be similarly treated, but first irrigated by a sterile decinormal salt solution. If the irritability continues after irrigation, use bismuth, or even tannic acid, or a very weak solution of nitrate or albuminate of silver. These last had better be followed by a thorough irrigation by the salt solution. Much of the water is thus absorbed to restore the tremendous waste of fluids already suffered. Minute doses of calomel are now useful, $\frac{1}{40}$ to $\frac{1}{10}$ grain every half-hour, dry on the tongue.

In conditions of collapse and continued retching a hypodermic of strychnia (gr. $\frac{1}{100}$ - $\frac{1}{50}$) may be needed and repeated as required. This may be combined to advantage occasionally with morph. gr. $\frac{1}{100}$, atrop. gr. $\frac{1}{800}$ once or twice. When the stomach can accept it, give brandy; old, sound brandy is most precious here, as evidenced by the eagerness with which the child welcomes the spoon in which it comes.

The infant is better for taking no food at all for six, twelve, or even twenty-four hours; sterile water and stimulants sufficing. Most cases will need external heat at some time, unless the weather is intensely hot. When the skin surface is hot, let this be exposed to drafts of air. By and by, as the stomach quiets and the bowels are freed of their fermenting contents, small amounts of food are admissible. Albumin water is most safe at

hour intervals, along with brandy or without. On the second day, this may be supplemented by fresh expressed beef juice; on the third day a carefully strained broth. Then keep to animal foods of the simplest sort, free of solid or solid-forming materials for many days. Before returning to milk, it is well to use cream and barley water. After the condition of the intestines has become satisfactory, a gradual return to modified milk may be tried once a day, supplemented by the other foods; then twice a day, and finally altogether. The proteids should be kept low till the stools warrant their restoration.

Much more might be said on the subject; but in outline these principles have served well in many difficult cases.

Surgical Hints. In the class of fractures in which there is detachment of processes and apophyses, we very often fail to get crepitus, as in transverse fractures of the patella, fractures of the olecranon and coronoid processes of the ulna, and of the coracoid and acromion processes of the scapula.

The severity of the symptoms of intestinal obstruction usually bears a relation to the suddenness of the attack. The more sudden it is, the worse for the patient, and the greater the need of immediate interference.

A truss for inguinal hernia is of no value unless the pad lies over the internal ring in a permanent position, notwithstanding the changes in posture of the body, and unless the pressure is just enough to hold the hernia, and no more or less.

In all intraperitoneal operations the rule is to move the bowels early, but if there is shock with a fast and irregular pulse and nervous disturbance, morphine is indicated at first, just enough to quiet the nervous system. After this has been accomplished the bowels may safely be moved.

It is a mistake to think that cancer of the uterus is always painful. If a suspicious growth is seen, the question of pain should not influence the diagnosis. Any flow of blood after the menopause demands immediate careful investigation, but cancer of the cervix has been observed in quite young women.

When you succeed in passing a catheter into the bladder in cases of considerable retention, do not empty it entirely or too suddenly, as it may give rise to hemorrhage, which is sometimes very profuse, or to severe cystitis, or even to urinary suppression and death. It is well to partially plug the lumen of the catheter so as to allow the urine only to dribble out.

If a child complains of pain anywhere about the lower extremities, or limbs in the slightest degree, examine the hip-joints as a matter of routine. In that way many unsuspected cases will be early revealed.

In an inflamed cervix uteri the tenaculum holds quite firmly, in carcinomatous ulceration it tears out readily, with much bleeding, and in cystic degeneration, while it usually tears out readily, it lets out thin mucus with or without blood.

In old people quite a considerable degree of cystitis may exist without giving rise to symptoms. The microscopical examination is in such cases quite indispensable.—*Internat. Jour. of Surgery.*

REVIEW OF MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE GENERALLY.

UNDER THE CHARGE OF

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The Elimination of Phosphorous and Nitrogen in Leukemia.

Hale White and Gowland Hopkins (*Jour. of Physiol.*, XXIV., 1, p. 42). The authors examined the urine of a patient with chronic leukemia, and arrived at the same conclusion as many predecessors, viz., that the elimination of phosphoric acid bears no direct relation to the increase of leucocytes. As far as the real cause of the hyperleucocytosis is concerned, it is believed to be due rather to a diminished destruction than an abnormal increase of the white cells. Consonant with many recent investigators, the authors found the uric acid in their case not to be increased.

Experimental Investigation of the Therapy of Vascular Disturbances in Infectious Diseases.

Passler (*Deutsch. Arch. f. klin. Med.*, Bd. LXIV.) employed numerous drugs in the collapse of acute infections. He inoculated animals and then studied the blood pressure under the influence of various medicaments. He believes the vasomotor paralysis to be the most potent factor in the production of collapse, and not cardiac weakness. Cardiac stimulants yielded little, if any, results. Digitalis may temporarily support the heart in its conflict against vasomotor palsy. Ether was valueless; alcohol also, even when given intravenously. Ergotin and strychnin were of any influence only in toxic doses. Only those remedies were of avail which were capable of exciting the vasomotor center, as caffein. This is superior to the time-honored camphor, owing to its more ready absorption. Normal salt solution, intravenously or by hypodermoclysis, may prove of favorable import, owing to the better filling of the heart.

The Appearance of the Typhoid Bacillus in the Urine. Schichhold (*Deutsch. Archiv. f. klin. Med.*) examined the urine of a number of typhoid patients, and, in contradistinction to other investigators, who found typhoid bacilli in the urine when the kidneys were healthy, "recovered the organism only in those cases in which evidence of renal disease existed." They appeared shortly after the onset of the kidney trouble, and lasted well into the convalescence. They appeared to be highly virulent, so that the disease may be transmitted through the urine. In such cases of "nephro-typhoid," the danger of infection, for the attendant, should not be underrated.

Recent Investigations upon Malaria. Thayer (*Med. News*, May 20, 1899, p. 617) briefly reviews the work that has been done in this line. As to the mode of infection, three chief views have been held, viz., (1) gastro-intestinal, (2) by inhalation, (3) by the bite of insects. Though we are handicapped by our lack of knowledge of the form and habitat of the malarial parasite when outside the human body, there seems little, if any, evidence to support either of the first two mentioned methods of conveyance. It has long been known, however, that the disease could be transmitted by inoculating any one with the blood of an infected individual. Years ago Laveran suggested the mosquito as a possible intermediate host, and, more recently, Manson, he who showed it to be true also in the case of the filaria sanguinis hominis. To Surgeon-Major Ross, however, is largely due the credit for our present position in the matter. He carefully studied mosquitoes in infected regions, and found in the stomach wall of those that had previously bitten infected persons, large pigmented bodies. The pigment resembled so closely that previously observed in the malarial parasite, that Ross advanced the view that these structures represented some extra corporeal stage in the life history of the malarial organism. He was unable at that time to prosecute his studies further, as the malarial season was over, but he studied the parasites of birds, which are similar to those of malaria. He found that if the gray mosquito (*Culex pipiens*) be fed upon birds infected with protozoa, there appear two days later in the wall of the intestines similar pigmented bodies to those described. These bodies are encapsulated. They increase in size up to the seventh day, and, on reaching maturity, protrude into the body cavity of the mosquito. Rupture soon occurs, with the escape of a large number of small, spindle-shaped, trypanosome-like bodies into the circulation of the insect. Ross further pointed out that many of these bodies accumulate within the cells of the veneno-salivary gland, the outlets of which unite in a common duct running to the tip of the mosquito's proboscis. Naturally this suggested a possible means of infection, and Ross found that mosquitoes fed upon infected birds were able to inoculate other non-infected birds. Grassi, Big-nami and Bastianelli have since succeeded in substantiating the above fact in the case of the human being. Three mosquitoes were allowed to suck the blood of an individual suffering from the estivo-autumnal type of malaria. They were then allowed to bite a non-infected person, who subsequently developed estivo-autumnal malaria. The three mosquitoes were then killed,

and in their stomach walls were found the large granular bodies, while spindle-shaped "sporozoids" were found in the salivary glands. Whether other modes of infection exist is not definitely known; but since all the encapsulated bodies found in the stomach wall of the mosquito do not give rise to "sporozoids," it is thought to be possible that some of them are resistant, spore forms as it were, of the parasite, and that they may possibly enter the mosquito larva.

DISEASES OF THE CHEST.

UNDER THE CHARGE OF

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On the Diagnosis between Supraphrenic and Subphrenic Pyo-pneumothorax. Sidney Short (*Birmingham Med. Rev.*, Apr., 1899) tabulates the principal points of distinction between the two conditions mentioned. He calls attention to the value of the history of the case, particularly in the manner of its onset and previous history of the patient. In the supraphrenic variety, the commonest cause is the rupture of a portion of the pleura covering a diseased lung. The subphrenic variety is commonly due to perforation of gastric ulcer, or secondary to hepatic abscess. There is, therefore, usually a history of dyspepsia, and possibly of hematemesis. This may be, however, entirely absent. Such an abscess may arise from the perforation of a duodenal ulcer, trouble in the gall-bladder, cancer of the stomach, abscess of the liver, hydatid disease, appendicitis, or a peri-nephritic abscess. If the onset is sudden, the diagnosis may be taken to lie between pneumothorax from early phthisis and a perforating gastric ulcer or hepatic abscess. In the first, there is an acute pain, with coughing, on the affected side. In a perforating gastric ulcer, pain is felt in the epigastrium, accompanied by acute tenderness. Vomiting may be present in both conditions, but is more common in pneumothorax. Dyspnea and faintness are present in either case. The most important point in the physical examination is to determine the position of the diaphragm. The signs of displacement of the surrounding organs are important points in determining this condition. The movement of the diaphragm is also of great value. Troubles in the thorax usually depress it, so that it fails to act; disease below the diaphragm raises it, but allows it to continue its

motion, which can be recognized by its effect upon the abdominal walls and the abdominal viscera. He reports a case in which there was an elastic tumor in the left hypochondriac region during an early period of the case. There was an area of full resonance between this area and the heart, which was pushed upward. The physical signs pointed to the presence of fluid below the diaphragm, occupying the position that would be taken by fluid in the lesser peritoneal cavity. The presence of a percussion splash indicated that there was air in the abscess cavity. There was some evidence of pleural effusion. Death occurred from acute pleuro-pneumonia. At the autopsy, there was an ulcer in the posterior wall of the stomach. In the lesser peritoneal cavity, there had been an abscess, which had healed. The left pleura was adherent all over. The point of interest in the case is the presence of an elastic tumor, which pointed to fluid in the lesser peritoneal cavity, and is one of the signs upon which special stress is laid in the diagnosis of the condition. The second point to which attention is drawn is the presence of clear serum in the left pleural cavity, obtained by tapping. This fact would indicate that the collection of pus was outside that cavity. When pyopneumothorax occurs in the left side, the commonest cause is perforation of a gastric ulcer. Cases of the cure of a gastric ulcer are so common in the hospital and this result is so uniform that there must be some special reason why cases not in the hospital so frequently perforate. The reason is perhaps the pressure of the corset upon the stomach. The most valuable signs of perforation are violent pain over the stomach, coming on quite suddenly, vomiting, which may or may not be severe, shortness of breath, rapid pulse, and general signs of early peritonitis. If operation is not performed at once, the course of the case either presents a general peritonitis or localization of the process by adhesions and the formation of a subphrenic abscess, usually containing air. In this condition, the general state of the patient may improve, but the patient remains weak, and has an irregular temperature, and the pulse is quick. Each sign should suggest a careful examination for the presence of pus.

Schott Treatment of Chronic Heart Disease. Elsworth Smith, of St. Louis (*Jour. Am. Med. Assoc.*, Vol. XXX., 11, No. 41), draws attention to the fact that persons frequently suffer from chronic heart disease for long periods of time without manifesting, to a very marked degree, the symptoms of the condition which may be present. Frequently these people go through life without danger, finally dying in old age of some intercurrent malady, thus showing that the destiny of a valvular heart disease does not depend upon the valvular lesion itself, but upon the condition of the *heart muscle*. So long as the cardiac muscle remains sufficiently strong to carry on the circulation in spite of valvular defects, just so long will the patient be free from any symptoms of disease of this organ. A weakening of the heart muscle will, however, give rise to venous stasis with all its attendant phenomena. Therefore the treatment of chronic heart disease resolves itself into the proper development of the heart muscle. As in conditions of muscles elsewhere, regulated and judicious training enables a better cir-

culation in the organ, thereby restoring to it an abundance of good, rich blood so much needed for its nutrition. In disease the cycle of systole, diastole and pause becomes altered so that the state of rest represented by diastole and pause is shortened, thereby causing an acceleration which wears out the organ; while, at the same time, insufficient nourishment is furnished through the medium of the coronary arteries. Any drug which stimulates the pneumogastric nerve reduces the number of beats, and for this reason such drugs as digitalis, strophanthus and convallaria do good. When loss of compensation is great, the best treatment is prolonged rest, thus reducing the pulse rate. In some instances, however, another plan of procedure is frequently of advantage in failure of compensation, even when quite marked; and attention is drawn to that method introduced by the brothers August and Theodore Schott, of Nauheim, Germany. By this plan of treatment, baths and a proper amount of exercise are judiciously employed, in order to bring about a better condition of the diseased organ. The Nauheim springs contain sodii chlorid, 2 to 3 %; calcii chlorid, 2 to 3 parts per 1,000, together with various salts of iron and a very great amount of carbonic acid gas. The carbonic acid gas is probably the most potent factor, since it brings about a stimulation of the peripheral circulation, thus causing a vasomotor dilatation of the arterioles. In this way, the surplus blood is drawn away from the heart, with rest to the fatigued organ. From this fact, the symptoms ameliorate, and it has been noticed that the organ has been reduced in size. These baths can be prepared artificially in several strengths:

Bath No. 1: Sodii chlorid, 4 lbs.; calcii chlorid, 6 oz.

Bath No. 2: Sodii chlorid, 5 lbs.; calcii chlorid, 8 oz.

Bath No. 3: Sodii chlorid, 6 lbs.; calcii chlorid, 8 oz.; Sodii bicarb., 6 oz.; HCl, 7 oz.

Bath No. 4: Sodii chlorid, 7 lbs.; calcii chlorid, 10 oz.; sodii bicarb., 8 oz.; HCl, 12 oz.

Bath No. 5: Sodii chlorid, 9 lbs.; calcii chlorid, 11 oz.; sodii bicarb., 1 lb.; HCl, 1 lb.

Bath No. 6: Sodii chlorid, 11 lbs.; calcii chlorid, 12 oz.; sodii bicarb., 1 lb.; HCl, 2 lbs.

To the foregoing different strengths of these ingredients are added 40 gallons of water. The baths are to be given every two days, preferably in the early morning, when the stomach is least apt to be full. The patient remains in the first bath five minutes, the temperature of which should at first be 96° F., and gradually reduced. That of every third bath is from 1° to 3° lower, down to 82° F. After the first bath, the patient may be allowed to remain a little longer each time, until finally he may remain 20 or 30 minutes. A cup of hot milk or bouillon should be given before and after the bath. The patient should, of course, be constantly watched while in the bath. After the bath he should be put to bed for an hour or two. On alternate days resistant movements should be employed. The movements involve the different groups of muscles, as of arms, legs, trunks, hands, feet, etc. At first only a limited number of movements are employed, and later they may be regulated according to strength of the patient.

DISEASES OF THE DIGESTIVE SYSTEM.

UNDER THE CHARGE OF

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The Determination of the Size, Shape and Position of the Stomach by means of the X-Rays. Rosenfeld (*Centralblatt für innere Medizin*, 1899, *Vratch*, Vol. XX., No. 15) employs the following method: Into the stomach is introduced a soft sound, 11 mm. in diameter and 120 cm. long, closed at one end and filled with small shot, so that the entire weight of the tube does not exceed 150 gms. 10 cm. of the lower blind end is perforated by means of a red hot needle with small holes directed at an angle which would admit air, but not allow the shot to pass through. The sound is introduced until it reaches the most dependent portion of the stomach. Then its location is found by the X-Rays, and its shape modeled on a lead rod, which is held in front of the sound, so that the shades of both the rod and the sound correspond. The rod is then used for drawing a line on the skin corresponding to the position of the sound. The stomach is filled with air by means of a rubber bulb attached to the outer end of the sound and observed by means of the X-Rays. It will appear as a bag distended with air, and its outlines can be made out distinctly, and drawn on transparent paper.

The Contents of the Stomach in the Gastric Crises of Locomotor Ataxia. Douglas (*The Lancet*, Apr. 15, 1899) puts on record another instructive case of gastric crises in tabes, tending to show that, contrary to the findings of Sahli, Rosenthal, Hoffmann and others, HCl may be entirely wanting during the attacks. The attacks to which the patient was subject occurred at frequent intervals, and were characterized by nausea, uneasiness in epigastrium, vomiting, first of food and then mucus mixed with blood and bile. On several occasions the amount of blood was about a pint. He also suffered from severe pyalism, rejecting at times from 1 to 1½ pints of saliva, which was found to act very vigorously on starch. The stomach was frequently examined by the aid of the tube, and careful analyses of the contents made. It was observed that during the intervals between the attacks digestion was normal, free HCl being present only in very small amounts. During the attacks, free HCl was generally absent, and traces of lactic acid were present on three occasions, while peptones were, as a rule, present on all occasions, except one, when blood formed a large part of the vomited matter. The conclusions drawn from this case are: (1) That during the crises the stomach secreted a large quantity of digestive fluid, inferior in but slight degree to that secreted during health:

(2) that there was no indication that this secretion was associated either with hyperacidity or hyperchlorhydria, and (3) that, apart from the presence of blood, there was nothing in the fluid indicative of a true lesion of the stomach.

The Chemical Properties of Pepsinogen. Borisow (*Bolnitshnaja Gaz. Botkina*, Vol. X., No. 14) determined, by a number of simple but conclusive experiments, the albuminoid nature of the pepsin-forming substance. He shows that the gastric juice contains only pepsinogen which, under favorable circumstances, becomes pepsin, the latter either combining with the albumin present or becoming destroyed. This mother-substance, or, as the author proposes to call it, propepsin, is albuminous, as is seen from the reaction which the concentrated gastric juice gives with concentrated nitric acid and other tests for albumin. The reactions obtained with an acid solution of propepsin are quite distinct from those given by a solution obtained by dialysis. In the former, (1) boiling throws down a heavy precipitate of albumin; (2) alcohol (95%) has the same effect, and (3) saturation with neutral salts produces a sediment of pepsinogen. If the solution, however, is not acid, the above reactions are not obtained: (1) The dialyzed solution remains clear on boiling; (2) is not precipitated by alcohol, and (3) saturated salt solution produces only a slight sediment. But, as soon as acid is added to this solution, the reactions characteristic of the acid solution of pepsinogen can be again obtained. This would seem to prove that pepsinogen combines with HCl, forming a new substance distinct from the original one. Again, the dialyzed solution was found free from Cl, showing that in the acid solution there occurs a combination of pepsinogen with HCl, this new substance being capable of decomposition by dialysis. The following experiment still further establishes this fact. If to a dialyzed solution of pepsinogen is added drop by drop a weak solution of HCl (0.2%), a sediment occurs, but if the addition of HCl be continued the sediment will finally be dissolved. From this it follows that the combination of pepsinogen with HCl found in the stomach is destroyed by dialysis, is insoluble in plain, but soluble in acidulated water. It was further shown that this combination of pepsinogen with HCl is a very unstable one, and the higher the acidity the more unstable it becomes and, *pari passu*, the more rapid is the formation of pepsin with the consequent digestion of albumin.

On the Influence of Nutrient Enemas on the Secretion of Gastric Juice. Ziarko (*Przegląd Lekarski*, No. 9, 1899; *Boln. Gaz. Bot.*, Vol. X., No. 14) determined that nutrient enemas, instead of increasing the secretion of gastric juice, as is supposed by Winternitz, actually diminish the acidity. This view removes the contraindication to the use of nutrient enemas in gastric ulcers pointed out by Winternitz. [It is probable that enemas may produce different effects upon the gastric secretion—sometimes stimulating it and under other conditions depressing it. In a series of clinical cases recently, I have found that enemas containing a weak solution of carbolic acid and listerine, given with a view to overcoming nervous symptoms depending upon autointoxication, markedly increased the secretion of HCl.—B. R.]

NEUROLOGY.

UNDER THE CHARGE OF

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Beitrag zur Lehre der acuten Poliomyelitis (Contribution to the Study of Acute Poliomyelitis). Bülow-Hansen and Harbitz (*Ziegler's Beiträge*, XXV., 3) report three cases of anterior poliomyelitis in childhood, two of which were with necropsy. These findings are important, and confirm the few studies already made in cases in which death has permitted an early examination of the nervous tissues. The findings were very similar in the two cases reported by Bülow-Hansen and Harbitz. The pia of the brain and cord was much congested, and the cord substance was very hyperemic. The arteries of the anterior fissure were especially affected. Exudation and round cell infiltration were found about the spinal vessels, and the round cells about some of the vessels were exceedingly numerous. The inflammatory process extended over the gray matter of the entire cord, but was most marked in the cervical region. It was most intense in the anterior and lateral horns; but in the cervical region the posterior horns and a portion of the white matter were involved. The medulla oblongata was also affected. The ganglion cells of the cord were destroyed, or much diseased, and the degeneration of these cells was most marked where the round cell infiltration and exudation were most intense. The examinations made in acute cases of anterior poliomyelitis show that the disease is a truly inflammatory one, and is probably the result of infection; the blood vessels being especially affected.

A Case of Brain Tumor at the Base of the Left Second Frontal Convolution. Gordinier (*Amer. J. Med. Soc., Phila.*, May, 1899, Vol. CXVII., No. 5,) has made an important contribution to cerebral localization in reporting a case of brain tumor situated in the left second frontal convolution, the sole localizing symptom of which was agraphia. The patient was a right-handed woman, and presented the general symptoms of cerebral neoplasm and the special symptom of total inability to write, without any other form of aphasia. Death followed an exploratory operation, and at the autopsy a glioma was found involving the left second frontal convolution. The arm area was distinctly separated from the lesion. The author thinks that this case proves the existence of a cortical center for writing that holds the same relation to writing movements that the speech center has to speech movements. It is located in the foot of the left second frontal convolution in right-handed persons and, possibly, similarly on the right side in the left-handed. Its destruction is followed by pure motor agraphia, *i. e.*, agraphia without other forms of aphasia. In reviewing the literature,

Gordinier has not found any case of pure agraphia; in most of the reported cases motor-vocal aphasia was present. Autopsies in such cases have shown that the lesion involved both the second and third frontal convolutions of the left hemisphere.

A Contribution to the Study of Aphasia. Collier (*Lancet*, *Lond.*, Mar. 25, 1899, p. 824) reports a case in which complete destruction of Broca's convolution by a neoplasm, in a right-handed person, produced no aphasia. The patient was subject to convulsive attacks, and was dull mentally. She had complete paralysis of the right sixth nerve, paresis of the left sixth and seventh nerves, but no involvement of any limb. She was not word-blind, agraphic, or aphasic, although occasionally she misused words. At the necropsy a tumor was found involving the inferior margin of the left second frontal convolution in its middle portion; the whole of the posterior portion of the left third frontal convolution; the posterior part of the orbital lobe and, to a small extent, the anterior gyrus of the island of Reil and the anterior portion of the first left temporal convolution. The right hemisphere was perfectly healthy. According to Collier, the case seems to prove the possibility of the fortuitous major activity of the glosso-kinesthetic center in the right third frontal convolution in a right-handed person. There was no instance of left-handedness in the family. The theory of defect in the left third frontal convolution causing predisposition to neoplasm in it and the development of a glosso-kinesthetic center in the right third frontal convolution, is unsupported by either the symptoms or the pathologic findings. The most plausible explanation is that in this patient there was an unusual location of the active glosso-kinesthetic center with the coincident presence of a neoplasm in the usual motor speech center.

MEDICAL DISEASES OF THE KIDNEYS.

UNDER THE CHARGE OF

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Acetosoluble Albumin in the Urine. Coffin (*Phila. Med. Jour.*, Apr. 29, 1899) reviews the literature of this subject, showing that there may often be found, especially in pregnant women, a form of albumin which is precipitated by boiling, but undergoes solution again upon the addition of acetic acid or even of nitric acid, in some cases; and that if rendered ever so faintly acid by acetic acid beforehand, it will not be thrown down

at all upon boiling. The nitric overlying test and nitric-magnesian test may be negative. The writer reports several cases in illustration and concludes that the boiling and acetic-acid and nitric-acid test are not to be depended upon in all cases, adding: "In this form of albuminuria, and it may be in any form of albuminuria, we have occasionally, or, it may be constantly present, in the urine a form of albumin soluble in acetic acid. This form of albumin is precipitated by Tanret's reagent, by Esbach's reagent, trichloroacetic acid, and by potassium ferrocyanid. Our growing knowledge of the albumins present in the urine tends more and more to show the unreliability of any single test as a constant index to the presence or absence of albumin."

An Exceptional Case of Hematuria. Frank (*Medicine*, 1899) reports a case of the above in a married woman, 42 years old, who had excellent health until 6 months before he saw her. Her only complaint was bloody urine, which was not checked by the ordinary treatment. On examination, he found uterus and appendages, as well as the kidneys, normal. Yet the urine contained blood, and there seemed to be more blood than urine passed. Bleeding from kidney and a catarrhal condition were excluded. There being no pain, stone in the kidney was also excluded. His treatment consisted of rest in bed with internal medicine, and irrigating the bladder. No relief was obtained by the above. Diagnosis of ulceration of bladder and erosion of the vessels was made. Examination with the cystoscope and with the straight glass endoscope revealed that the mucous membrane of the bladder was covered with numberless uric acid crystals, whose sharp points and corners had penetrated into the bladder wall. The mucous membrane between the crystals was red and congested, but not as much as would be expected. It was decided to use a Bigelow's evacuator, and, with each suction of the bulb, large quantities of uric acid crystals appeared. The patient entirely recovered under this treatment.

Chronic Nephritis Affecting a Movable Kidney as an Indication for Nephropexy. Edebohls (*Med. News*, Apr. 22, 1899) states that out of 6 cases of movable kidney with chronic nephritis operated on, 4 were cured by this procedure. He thinks that there is no doubt that the kidney symptoms were produced by the movability of the kidney, as an examination of the urine, repeatedly, showed no signs after 1, 2, 4 months and 1 year respectively, and as none of the patients received any treatment after the operation. In one of the 6 cases the nephritic symptoms reappeared after the kidney was redetached. One of the most important facts learned was that chronic nephritis is probably unilateral much oftener than is supposed. In 2 of the 4 cases all the symptoms of chronic nephritis disappeared after fixation of the movable right kidney. The left in these cases must have been sound, or the urine would not have given negative results. In the other 2 cases bilateral nephropexy was performed, and the nephritis was found unilateral, affecting the right kidney in one and the left in the other. From this fact it follows that the diagnosis is more encouraging for one suffering from chronic nephritis. It seems to the author that if

displacement of the kidney gives rise to the congestion, why may not the latter condition occasionally progress to inflammation? E. Ross corroborates Edebohls' statement, and has operated on 14 cases of this kind which, after operation, were free from albumin and casts.

DERMATOLOGY.

UNDER THE CHARGE OF

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A New Agent for the Treatment of Alopecia Areata. MacGowan (*Jour. Cut. and Gen.-Urin. Dis.*, May, 1899) claims to have found in trikresol a remedy of superior value in the treatment of alopecia areata. Eight cases treated by this application were cured within a period averaging $2\frac{1}{2}$ months. The first application is preceded by thorough cleansing of the patch with benzine. The remedy is applied pure to the scalp and in 50% solution with alcohol to the face. The patch and surrounding zone are thoroughly frictioned with a swab of cotton, saturated with the trikresol. The application causes a burning pain, which disappears usually in the course of a few minutes. The area treated becomes thoroughly blanched, the whitish discoloration being followed in a few hours by hyperemia. The applications are repeated in from 4 to 10 days.

Lupus Erythematosus in a Tuberculous Subject—Autopsy Report. Fordyce (*Jour. Cut. and Gen.-Urin. Dis.*, Mar., 1899) reports the case of a 39-year-old woman, affected with lupus erythematosus, who was admitted to the City Hospital of New York during the spring of 1898. She had been addicted to the excessive use of alcohol for years, was inordinately fat, had only menstruated thrice in her life, and was a confirmed epileptic. She was brought into the hospital in a state of delirium which developed into coma, soon terminating in death. The patient presented a typical butterfly-shaped patch of lupus erythematosus upon the nose and cheeks, which was of three years' standing. The blood vessels over this area were markedly dilated. Upon autopsy, were found pulmonary and cerebral edema, tubercular abscesses of the kidneys and hypertrophic hepatic cirrhosis. The author remarks: "The frequent association of lupus erythematosus with tuberculous foci in the lymph nodes and internal organs, as well as the close clinical resemblance of certain forms in this disease with lupus vulgaris, have convinced many excellent clinicians that something more than a mere

coincidence connects the two processes. In this case, however, there were so many pathological factors that it is difficult to ascribe to any of them an etiological significance."

Injections of the Artificial Serum of Hayem in Malignant Syphilis.

Augagneur (*Ann. de Dermat. et de Syph.*, May, 1899) writes as follows: "All specialists are acquainted with cases of malignant syphilis, although they are rare, which resist the most active specific treatment. The two following cases, in which subcutaneous injections of artificial serum (lavage of the blood) transformed the patients, one of whom was in a desperate state, are sufficiently conclusive to formally indicate this measure in analogous cases." The first case was a malignant precocious syphilis occurring in an 18-year-old lad, who had, from the third month after infection, suffered from deep ulcerations, and whose general condition was grave. On February 15th the patient had an extensive papular eruption, the lesions running together in plaques. The patient was weak, pale, emaciated, with anorexia, diarrhea and occasionally vomiting. He was given daily inunctions of 6 grms. of Neapolitan (mercurial) ointment, 2 grms. of iodid of potash, and tonics. On February 28th the local and general condition was worse, many of the papules undergoing ulceration. Suppuration was abundant, and new lesions were appearing every day. The evening temperature was 38.6° to 38.9° C. The patient was in a profound asthenia. On March 2d, in addition to the previous treatment, the patient was given an injection, into the cellular tissue of the right thigh, of 150 grms. of the following fluid:

Sodium chlorid, ...	7 grms.;
Crystallized disodic phosphate, ...	2 " ;
Water, ...	1,000 " ;

The same evening there was rise of temperature to 38.7°, dropping to normal in the course of a few days. There was also marked polyuria. A second injection was given on March 10th, and a third on March 16th, after which a marked improvement in the general health occurred. The fever and pain disappeared, the appetite returned and the skin lesions began to cicatrize. Four more injections were given at intervals of 6 to 14 days, and the patient made an excellent recovery. The patient was seen a year later and had had no relapses. The second patient was a syphilitic of 5 years' standing, who, although continuously treated with mercury and iodids, had had frequent relapses. At the time of admission to the hospital, he was suffering from a papulo-tubercular eruption of the face and ecchymatous lesions of the body, for which he had used alternately iodids and inunctions of mercury. Weekly injections of calomel were inaugurated, but seemed to aggravate the condition. The patient had no appetite, was bedridden and suffered with diarrhea. Three days after the first injection of artificial serum, there were favorable modifications of the local and general condition. The patient immediately felt much better. After the second injection, he was able to resume the use of potassium iodid. The patient left the hospital 26 days after the first injection, completely recovered. The

writer claims that the favorable action of the injections cannot be contested. How they act, he is not prepared to state; perhaps by increasing renal activity and the elimination of the toxins, or by stimulating leucocytosis and so fortifying the organism. He advises the injections in quantities of 400 to 500 grms. every 5 or 6 days. The greater the febrile reaction and the more profuse the polyuria, the more energetic the effect. It is only necessary to give 4 or 5 injections at any one period.

THERAPEUTICS.

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On the Absorption of Iron. Austin (*Boston Med. and Surg. Jour.*, Vol. CXL., No. 9), with the help of Coriat and Thorpe, experimented upon three dogs, a beagle, bull and setter; they fasted them for 3 days and then fed them 300 grms. of meat, to each of which was added iron in the form of sulphate, or albuminate, or hematin, each having the same amount of iron, *i.e.*, of the 1st, .972 grms.; of the 2d, 5.86 grms.; of the 3d, 11.42 grms.; and during the time they were under observation, a careful chemical examination was made of the feces, and of the fresh meat before it was given to the dogs. The method required skill for its manipulation and was rather lengthy. His conclusions were as follows: (1) That iron is constantly being eliminated both in urine and feces even during fasting. (2) That apparently raw meat furnishes an available form of iron for absorption under normal conditions. (3) That inorganic iron as represented by ferrous sulphate is non-absorbable. (4) That albuminates and peptonates of iron are absorbable but to a limited extent. (5) That organic iron, of which hematin and hemoglobin are representatives, furnishes the most easily absorbable and most valuable of all iron preparations.

Tetanus Antitoxin, Clinical and Experimental. Tavel (*Correspondenz-Blatt für Schweizer Aerzte*, Vol. XXIX., Nos. 7 and 8) has made a study of antitoxin in tetanus, and has used it with good results, both in cases of men and horses; he has found some difficulty in getting animals to develop a serum of high grade, which should be at least 1:2,000,000. Most animals, however, develop a lower grade, which is only of use in immunization. He reports 4 cases of horses; 2 died and 2 recovered. Ten human cases as follows: (1) Woman, ran a splinter in middle finger April 10, 1897. May 3d, tetanus; 4th, 5th, 6th, and 7th, chloral treatment;

8th, 9th, 10th, 10 injections of serum (1:20,000,000); recovery. (2) Man, 41 years, injured knee on September 20, 1897. October 3d, tetanus; October 5th, 4 injections of serum; 6th, 2; 7th, 2; 10th, 2; 12th, 4; 13th, 2; recovered slowly. March, 1898, he had resumed work. (3) Man, 55 years, wound of middle of finger with crowbar, April, 1898. May 24th, developed symptoms; May 28th to 31st, 10 injections of serum (1:1,000,000,000); from 2d to 9th of June, 14. Improved slowly. (4) Child, 10 years, May 14, 1898, fell from a ladder; March 24th, developed tetanus. From 27th to 6th of June received a daily dose of serum; by 29th was cured, except some facial paralysis. (5) Man, 37 years, wound of finger by a nail on September 5, 1898; on 7th, tetanus; 10 P.M., injection of 50 c.c. serum (1:2,000,000,000); 11 P.M., cramps were better and he continued to improve without interruption. (6) Case died. (7) Died. (8) Struck on the head December 8, 1898, with a whip; by 13th tetanus had developed; 50 c.c. serum given subcutaneously, followed by 50 c.c. intravenous. December 14th, 50 c.c. intravenous; died. *Post-mortem* showed septic thrombi. Ninth and tenth cases also recovered. In reviewing his cases, the author believes that the first case would probably have recovered without antitoxin, and he has mentioned in the latter part of his article that the diagnosis of some of his cases seems to be questionable. The cases that were treated by the intracranial method did not yield the expected result, although Profs. Kocher and Girard intend to publish their cases later.

Stypticin (Cotarnine Hydrochlorate) in Uterine Hemorrhage.

Boldt (*Med. News*, Vol. XXIV., No. 14) has investigated the use in different forms of bleeding and has classified the results under the following divisions: (1) Prolonged and profuse menstruation in unmarried anemic subjects without any discernible change in the pelvic organs—9 cases; $\frac{3}{4}$ to $2\frac{1}{2}$ grs. every 2 hours were given in most cases; 2 were only slightly benefited. Flow was usually decreased, but dysmenorrhea (in those who suffered) continued. (2) Fibromyomata, causing menor- and metrorrhagia—4 cases; 3 no result, 1 slightly improved. (3) Hemorrhage due to cancer—5 cases; negative result. (4) Para- and perimetritis after abortion—3 cases; improvement in all. (5) Para- and perimetritis after full term delivery—2 cases, both improved. (6) Profuse and prolonged menstruation in multiparae without anemia and without changed endometrium, but moderate enlargement of the ovaries—8 cases; 1 no effect, 2 lost, others benefited. (7) Irregular bleeding after the puerperium without retention of decidua or placenta, these having previously been removed with the curette—12 cases; marked effect in all. (8) Irregular bleeding after the puerperium with retention of small areas of placental tissue—2 cases; little or no result. (9) Hemorrhagic endometritis—8 cases; no effect until after curettage. (10) Fungous endometritis—2 cases; no result. (11) Retroflexion with chronic endometritis—2 cases; only slightly benefited, while routine treatment gave prompt relief. (12) Chronic metritis and endometritis—7 cases; 1 result marked, 6 slight. (13) Irregular bleeding in multiparae at the menopause—5 cases; good results. (14) Irregu-

lar bleedings without any discoverable cause—1 case; good result (hydrastis had no effect). (15) Subinvolution present 6 weeks to 4 months after delivery—11 cases; 1 no appreciable effect, others markedly benefited. (16) Perimetritis a parametritis due to traumatism—3 cases; good results. (17) Bleeding during pregnancy—3 cases. Its action in this class was doubtful. In 1 case of placenta previa, a hypodermic injection gave immediate relief; while in 2 others, of pregnancy, about the 3d and 4th months, bleeding was controlled without producing pain or abortion. Therefore as to its oxytocic properties there is some doubt. The author believes that in some forms of uterine hemorrhage it is almost a specific, and has administered as high as $4\frac{1}{2}$ grs. to a dose without unpleasant effects. The drug is a derivative of narcotin, one of the alkaloids of opium, and has a yellow color, intensely bitter, soluble in water, and becomes darker when exposed to light.

CLIMATOLOGY AND HYGIENE.

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On the Question of the Influence of the Public School on the Physical Development of the Pupils. Vashnow (*Vratch*, Vol. XX., Nos. 4 and 5) has made some interesting observations on the pupils of 10 public schools during a period of 3 years, with a view of determining what effect the school has on their physical development. He arrives at the following conclusions: The physical development of the children under observation was quite satisfactory. The yearly increase in height and chest measurements was normal, and no retarding influence of the school on this increase was observed. In making such observations, it is absolutely necessary to observe the same pupils during the successive years.

House Air Consumption. Swayze (*Med. Times*, May, 1899) very properly calls attention to the fact that the primary predisposing cause of consumption is the air of living apartments, offices, factories, etc., which is saturated with poisonous gases as a result of the desire of the people to exclude dust and cold. This air is irritating to the lungs, impoverishes the blood, and thus not only impedes the recovery from any lung disease, but develops a favorable nidus for the development of tubercle.

Is Tuberculosis Infectious? Buschnew (*Vratch*, Vol. XX., No. 14) devotes a very extensive paper to the discussion of this important subject. He calls attention to the morbid fear of contagion spreading among the people, and holds that it is largely under the influence of physicians. This consumption-scare exerts a demoralizing influence on the victims as well as on those who come in contact with them; it brands the consumptive as an outcast, and mercilessly severs all blood-relations or ties of marriage and friendship. The author therefore questions the correctness of the prevalent belief in the contagiousness of tuberculosis, and cites numerous observations of such authorities as Revilliod, Riffel, Mitrophanow, Varguniw, Middendorp, Hueppe, Aufrecht, Williams and others tending to disprove not only the contagious nature of tuberculosis but the direct causative relation to the latter of the bacillus of Koch. He endeavors to prove, by statistics and otherwise, that in hospitals and sanitariums, where the help comes in intimate contact with consumptives, cases of infection are extremely rare. Thus, during his service in hospitals for the last 12 years, he observed only 1 case of infection, the patient, a servant at the autopsy room, being of very untidy habits and an alcoholic. Similarly, cases of direct infection among physicians are extremely rare, as is attested by the fact that many throat specialists, who come in such close contact with patients suffering from tuberculous laryngitis, live to a good old age. The commission for the investigation of diseases in England sent out the question, "Is tuberculosis contagious?" to the physicians; and of the 1,000 answers, only 261 were affirmative; 673 absolutely denied the contagiousness of consumption. A similar question was proposed by the Hospital Society of Paris to 10,000 physicians, and 83 answered, giving 439 observations, 213 of which indicated the contagious nature of this disease. Of 124 physicians who answered this question to the Italian Hygienic Society, 59 were in the affirmative. "We," says the author, "have inhaled, inhale, and undoubtedly will always inhale, not an unconsiderable number" [of tubercle bacilli]. In a lesser number we take them in with our food, as, for instance, milk from tuberculous cows. It is time to cease trembling before the "rods"; it is time to place them in their very modest position in the causation of disease; it is time to consider as truthful the idea of Vergely that "the soil is all, the microbe nothing." In conclusion, he recommends as an effective prophylactic against consumption not the free spittoons, but improvement in the hygienic and dietetic conditions of the poor, so as to fortify their organisms against infection.

Relations of the State to the Consumptive. John H. Pryor, M.D. (*Med. News*, Feb. 18, 1899), makes a strong plea for the establishment of a State hospital for incipient consumptives in the Adirondack Mountains on land owned by the State of New York. It will be remembered that the Forest Reserve of New York now owns over 1,000,000 acres; and no better use could be made of State property than to care for some of the 50,000 ill with tuberculosis now residing in the State of New York. Dr. Pryor believes that the number of deaths from that disease—now numbering 14,000 *per annum*—could be lessened at least one-half; and

he shows the immense saving to the State, amounting to many millions of dollars, which might thereby be saved, by proceeding to establish State Sanatoria. Speaking of the consumptive, Dr. Pryor says: "He belongs to the only class of afflicted for whom no intelligent provision has been made. The conditions and the circumstances surrounding his distress make him the unique, pathetic victim of an anomaly in our system of charities.

. . . Thousands die simply because they are poor and cannot obtain help at the proper time. The consumptive should be cared for until he is well, not until he is dead. We are working at the wrong end of the problem. The idea that consumption is necessarily fatal must be combated, and there can be no good reason why the consumptive alone should be denied any chance to fight for his life. Shall something be done for the consumptive as well as for others suffering from disease in the only rational way that promises anything, or shall the old, wasteful, cruel, let-alone policy prevail?" No doubt this is the most vital philanthropic and economic problem of our time.

SURGERY.

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Hip Disease: Its Treatment and Results. McKenzie (*Can. Pract. and Rev.*, Jan., 1899) summarizes his views on this subject as follows: (1) Hip disease is a local manifestation of a constitutional disease. (2) Early operative interference is seldom justifiable. (3) As soon as softening can be determined, the surgeon should operate and obey indications, observing all care not to injure needlessly the mechanical integrity of the joint, and knowing that he is but aiding nature by removing tissue which she has already cast off. (4) In the future management of the wound, the principles of asepticism must be carefully observed. (5) From the earliest moment, efficient protection for the joint should be secured and constantly maintained by a well-fitting mechanical appliance. (6) Constitutional treatment is indicated as in other tubercular affections. Great emphasis should be laid on obtaining the freest exposure to sunlight and fresh air. (7) After excision, a perfect recovery is never effected, the mechanical integrity of the joint having been interfered with.

(8) Following mechanical and constitutional treatment, perfect restoration of function is sometimes obtained. (9) Even when softening of tissue occurs and necessitates incision, there is sometimes a perfect restoration, and frequently a highly useful return of joint function.

The Oxygen Treatment of Wounds. Stoker (*The Med. Press*, Feb. 8, 1899) has found by experimentation that the most beneficial results are produced by the continuous exposure of the parts affected to the oxygen gas. Contrary to the ordinary opinion, that the oxygen treatment is only useful in cases of chronic ulcers and sores, this author finds that the most brilliant results are seen where the treatment is used in cases of recent wounds, burns, etc., both in reference to the rapidity of the healing as well as to the nature of the new skin formed; for it is not any ordinary cicatrix that is produced, but a skin almost physiologically perfect. The author reports the following cases in which the results produced were perfect: Chronic senile gangrenous ulcer, in a patient 83 years old. Contused wound 3 weeks old and infected, in a patient 47 years old. Extensive lupus of the face and ear, that had been rapidly spreading for two years, despite treatment by various methods. In these cases the author suggests: (1) To remove the diseased surface by scraping; (2) the skin grown under the oxygen is almost physiologically perfect and is more capable of resisting; (3) the formation of oxidized toxins on the wound influences areas outside and tends to prevent extension.

Intravenous Saline Injections in Severe Hemorrhage. Cobb (*N. Y. Med. Jour.*, Jan. 28, 1899) calls attention to the value of these injections by detailing a series of experiments which showed the ease with which this operation can be performed; the condition of the blood after the injections; the point where it is hopeless to expect favorable results from saline injections; the different temperatures at which saline solution may be injected without doing harm; their pressure effects on the circulation and their effect when combined with oxygen. The great value of these injections has been over and over again demonstrated in cases of serious hemorrhage, and their value in saving lives cannot be too forcibly stated. This author has shown that any one can introduce them with safety who is fit to perform the most trifling operation, all that is essential is asepsis. Complicated apparatus is not necessary; clean apparatus is. A canula from any instrument case or a medicine dropper will do, if boiled. The canula prepared by instrument makers is more convenient. A syphon made by passing a rubber tube into a graduated bottle, or any large bottle in which the amount of solution used can be readily estimated, is all that is required. An ordinary self-injecting fountain or Davidson syringe may be employed. No patient need die from hemorrhage without a trial of this method; any surgeon can improvise the necessary apparatus. What is necessary is, that it be employed immediately. The scrubbing of the arm or field of operation must be as thorough as for any operation. A vein is selected and cut down upon. Two ligatures are passed around it, about an inch apart.

The fluid is started through the tube and canula; the vein cut into between the ligatures and the canula inserted and tied in. The lower ligature is tied and cut short, while that upon the canula remains. The flow of the solution during the insertion of the canula prevents air from entering the vein. After the solution is introduced dissect up the vein for about 2 inches put on a second ligature and cut out the portion of vein between the ligatures.

The temperature of the saline solution should be about 114°F; it need not be absolute, if it does not feel too warm for the finger, it will not do harm, nor need it be cooled if the thermometer shows it to be 125°F. When given in conjunction with oxygen inhalations, its efficiency is increased. The venous injection is preferable to the subcutaneous; it is rapid, and the desired effect is produced when it is most needed. The bandaging of the extremities and the position of the patient are not to be omitted. Too much pressure must not be produced, the volume of the pulse and action of the heart must be carefully studied. A tablespoonful of salt in two pints of boiled water is efficient, and better than waiting to measure and sterilize a solution while the patient dies. Saline solutions and oxygen in uremic convulsions and threatened eclampsia have been proved to be most potent agents against these conditions.

The Treatment of Appendicitis. Chauvel (*Gaz. des Hop.*, Jan. 26, 1899), in reviewing the cases of appendicitis that occurred in the French army, found that there were 171 cases; 83 were treated medically, while surgical intervention was necessary in 88 cases. The diagnosis was not made sufficiently early in many cases, so that the patients were often late in coming into the hospital. The mortality was found to be greater in those who came into the hospital late. The diagnosis should therefore be made as soon as possible, and the appropriate treatment applied. The marked pathological changes found in the appendix, *post-mortem*, seem to indicate the value of early operation. The mortality was greater after operation than where medical treatment was employed; but only the more serious cases were submitted to operation. Early operation in the same way was shown to be more fatal than the delayed intervention. Prolonged search for the appendix is not without danger. In his conclusions, he believes that mild cases are curable by medical treatment. Intervention should be delayed until suppuration is evident, and he prefers the later operation. Although the removal of the appendix is advantageous, it is not essential, and too persistent a search is dangerous and inadvisable. In general peritonitis, immediate operation and extreme thoroughness are always indicated. Operation between the attack, *i.e.*, in the interval, is only permissible where the symptoms are persistent and the patient desires it.

The Mississippi Valley Medical Association will hold its twenty-fifth annual meeting in Chicago, October 3 to 6, 1899. The committee of arrangements promises a number of attractive features. The president is Dr. Duncan Eve, of Nashville. It is requested that titles of papers be sent at once to the secretary, Dr. Henry E. Tuley, Louisville, Ky.

LARYNGOLOGY AND RHINOLOGY.

UNDER THE CHARGE OF

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Hemorrhage Following Removal of Adenoid Vegetations (Ueber Blutungen nach Operativer Entfernung der Hypertrophischen Rachenmandel). H. Cordes (*Deutsch. Med. Zeitung*, No. 25, 1899) holds that these hemorrhages may be due to the following causes: (1) General disease, such as hemophilia. (2) Cardiac affection, particularly hypertrophy of the left side and arteriosclerosis. These affections play no role in children, but should be taken into consideration in the removal of the buccal tonsil in adults. (3) Certain anomalies of the pharynx, with especial reference to the position of the internal carotid. There must also be described the existence, beneath the posterior wall of the pharynx, on a level with the anterior surface of the atlas, of an osseous crest, which in certain cases may be very prominent, render the operation difficult, and occasion, if it be cut away, alarming hemorrhage. Similar result may come from the bony prominence described by Grünwald on the posterior border of the septum, known as the wing of the septum. (4) The previous application of cocain may be a cause of grave hemorrhage. (5) Shreds of vegetations, remaining adherent to the posterior wall of the pharynx after operation, occasion a hemorrhage which ceases when the offending material is removed. (6) A cause of hemorrhage after ablation of adenoid vegetations, which has not heretofore been described, and of which the author has seen two cases, is found in adult females when the operation coincides with their menstrual period. (7) At other times hemorrhage occurs without any assignable reason. It is always in order to remark that if one uses a very sharp instrument hemorrhage may very likely follow. (Abstracted by Jankelevitch in *Rev. Hebdom. de Laryng.*, etc., No. 20, 1899.)

Protargol in Rhinology and Laryngology (Das Protargol in der Rhinolaryngologischen Praxis). Alexander (*Soc. Laryng. de Berlin*, Feb. 3, 1899) has employed in chronic catarrh of the pharynx, especially that form intermediary between the hypertrophic and atrophic varieties, applications of a 1% aqueous solution. In similar conditions in the larynx he has used a $\frac{1}{2}$ % solution, and in the nose a spray of a 1% solution, to which 10% to 20% glycerin has been added. In uncomplicated suppuration of the mucosa of the maxillary sinuses he injects 50 c.c. of a 5% solution of protargol, after thoroughly cleansing the cavity with sterile water. In vasomotor rhinitis and hay fever, he massages the nasal mucous membrane with a 1% to 5% solution of protargol. By this means he has sometimes improved the patient's condition when all other measures failed. Benefit is noticed after the

third or fourth visit. (Abstracted by Rosenberg in *Rev. Hebdom. de Laryng*, etc., No. 18, 1899.)

Contribution to the Study of Leucoplasia Buccalis (Contribution a l'étude de la Leucoplasia Buccale). Legrand (*These de Paris*, 1896) draws the following conclusions: Leucoplasia developed in old syphilitics should be considered, as tabes and general paralysis of a specific origin—a parasymphilitic affection. In this condition, specific treatment should not be employed, for it is not only useless, but harmful and dangerous. The only treatment capable of avoiding epitheliomatous degeneration, which so frequently occurs, is early surgical intervention. (Abstracted by F. Ardenne in *Rev. Hebdom. de Laryng*., etc., No. 20, 1899.)

The Sensation of Taste Induced by the Electric Current (Ueber den Electriscen Geschmack). Zeyneck (*Centralbl. für Physiol.*, XII., 10, 1898) says that as the sensation of taste varies with the intensity of the current employed on the tongue, the gustatory sensation thus provoked should be considered as an electrolytic action. As to knowing what point of the tongue is the seat of this electrolysis, the author supposes that there exists between several a decomposition of the salts of the saliva effected by the current. (Abstracted by Rosenberg, *Rev. Hebdom. de Laryng*., No. 16, 1899.)

OPHTHALMOLOGY.

UNDER THE CHARGE OF

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Sudden Paralysis of the Third Pair of Nerves and Interstitial Keratitis in Acquired Syphilis. Fromaget (*Annales de la Polyclinic, Bordeaux*, Apr., 1899) reports an interesting case of ocular complications of syphilis in a woman of 39. She had been suffering with recent interstitial keratitis, and, while under treatment, was suddenly affected with complete paralysis of the third pair of nerves. Going to bed apparently healthy, with the exception of the keratitis, she awoke the next morning with ptosis, external strabismus, dilated and inactive pupil, in fact, involvement of the entire external and internal musculature supplied by the third pair. It seemed as though not a single fasciculus of the nerves had been spared. Under full doses of iodids, electricity and intramuscular mercurial injections, there has been a gradual improvement in the paralysis, but by no means a recovery. The corneal condition has improved markedly. Fromaget believes that on account of the rapid onset and complete involvement, the paralysis was due to hemorrhage of the nerve-trunks. Had the paralysis been less extensive, a nuclear lesion might have been suspected; but certainly the rapid onset precludes the possibility of neuritis, exostosis, or gumma, or other intracranial syphilitic lesion being the cause.

A Peculiar Form of Corneal Infection of the Serpiginous Type. Morax and Petit (*Le Progrès méd.*, Mar. 25, 1899) have observed in 2 cases of serpiginous forms of corneal infection instead of the usual pneumococcus, a special bacillus which, by its abundance and unique position, must be a formidable etiologic factor. These cases came on slowly, without pain, and presented a superficial ulcer with a progressive border, accompanied by considerable hypopyon. The micro-organism of the ulcer resembled the bacillus of subacute conjunctivitis. It liquefied gelatin and coagulated serum; and grew on bouillon. It was decolorized by Gram's method, and multiplied freely at a temperature between 15° and 37° C. It was not pathogenic to the lower animals.

Iridocystectomy for Occlusion of the Pupil. Ring (*Univ. Med. Mag.*, May, 1899) reports a successful operation for entire closure of the pupils by a yellowish exudate or pseudo-membrane; the result of iridocyclitis following cataract extraction. The iris fibers were well drawn up toward the upper periphery of the cornea. Vision was reduced to light-perception and questionable light-projection. Although this condition is rare with the present aseptic precautions and improved operative technique, yet it does occur, and has always constituted a very intractable complication. In consequence of Ring's good result, his *modus operandi* possesses especial interest. Following closely the directions of Knapp, a horizontal incision was made with Beer's cataract-knife, 2 mm. from the lower corneal margin, and from 5 to 6 mm. in length. After entering the anterior chamber, the handle was depressed and the point of the knife carried to the portion of the iris just under the yellowish-white exudate or pseudo-membrane, and the iris transfixated by a horizontal opening, 4 mm. in extent. The iris and pseudo-membrane were then caught with a Tyrrel hook and a clean iridectomy made down and slightly in. As there was considerable pseudo-membrane posterior to the coloboma thus formed, the hook was introduced a second time, and a portion of the pseudo-membrane excised. The operation was performed under strict antisepsis: atropin was instilled at its close, the patient put to bed, and the resident instructed to use ice compresses in the event of reaction. Recovery was rapid and uneventful. When the dressing was removed, at the end of 24 hours, there was practically no reaction. The patient recognized faces at once, and counted fingers readily, and at the end of a week, with an appropriate lens, told the time on the dial of a watch with absolute accuracy. At the end of about 3 weeks the distant vision, with the appropriate correction, was 20 LX. with some letters of 20/L. An operation that makes possible so gratifying a visual result in a series of cases ordinarily unpromising is surely worthy of very general trial.

The Etiology and Mechanism of Choked Disc. Deyl (*Wiener klin. Rundschau*, Apr. 13, 1899) concludes that choked disc is caused by compression of the central retinal vein, either at the point of emergence or just before it emerges. The pressure is due to the outer sheath of the optic nerve, which is forced away from the nerve proper by effusion or extravasation of blood from increased intracranial pressure or some obstruction of the optic

foramen. In some cases the choked disc is due to stagnation of lymph and consequent compression of the veins. Of the many causes of choked disc are cerebral tumors, akromegaly, syphilis, tuberculosis, nephritis, etc. The theory of primary edema is refuted by the fact that the vein is dilated rather than contracted in its farther course. Deyl calls attention to the new diagnostic sign—the impossibility of artificially controlling arterial pulsation on the papilla—which may often differentiate brain-tumor from nephritis as a cause of choked disc.

GENITO-URINARY SURGERY AND VENEREAL DISEASES.

UNDER THE CHARGE OF

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Diverticulum of the Bladder. Wright and Coates (*Lancet*, Mar. 18, 1899) report a patient whose misuse of a catheter for 11 years resulted in a chronically inflamed bladder with a diverticulum behind and to the right forming a cyst 4 times as large as the normal bladder. Following three attacks of gonorrhea and the inception of syphilis, he began to pass a catheter, a No. 12. This he never cleaned, and rarely lubricated. He carried it coiled in his pocket. When the man came into the hands of Mr. Coates, he was compelled to pass the catheter twice every hour. His temperature was 102° F., pulse rapid and feeble, and his urine foul, bloody and mucopurulent. His condition was slightly improved by internal urinary antiseptics and repeated bladder washings. But as the man's condition became worse an operation was done, a supra-pubic cystotomy. The bladder wall was so thickened that it was difficult to push the knife through. The man died a few days after the operation. At the necropsy suppurating kidneys were found. There was no urethral obstruction. The diverticulum is explained by the constant irritation of the catheter and infection thickening the bladder wall except in one weakened spot, where the sacculus formed. The case resembled closely Sir John Erichsen's.

Ligation of Spermatic Vessels for Prostatic Hypertrophy. M. Monad (*Corres. Med. Press and Circ.*, Apr. 5, 1899), at a meeting of the Surgical Society, Paris, reported the case of a patient with prostatic hyper-

trophy and acute urinary retention, who was relieved after ligation of the spermatic vessels. That the testicle did not necrose, but merely diminished slightly in volume, was attributed to usual escape of the artery of the vas deferens in such ligations. M. Regnier thought that the ligation of the spermatic vessels frequently provoked testicular lesions, especially if any sepsis occurred. On the other hand, M. Bazy stated that such resections of the deferens canal, as pointed out long ago by Sir Astley Cooper, in no way interfered with nutrition of the testicle; but, on the other hand, they had no effect upon the hypertrophied prostate.

Acute Diffuse Gonococcus Peritonitis. Cushing (*Bull. Johns Hopkins Hospital*, May, 1899) reports two cases of this rare, and hitherto apparently unrecognized, affection. While gonorrheal infections extending from the genital organs to the peritoneum usually remain localized, the possibility of generalized peritoneal infections is thus shown. It is also pointed out that the infection may reach the peritoneal cavity during the menstrual, as well as during the puerperal period.

GYNECOLOGY.

UNDER THE CHARGE OF

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Endometritis, Congestion, or What? Barber (*Yale Med. Jour.*, Mar., 1899) discusses the usual methods of treatment in endometritis, and emphasizes his belief in the following résumé: (1) That simple endometritis, uncomplicated, is rare; that a leucorrhea, when present, is not indicative of it, without the presence of micro-organisms, which would argue that all scrapings should be microscopically examined for correct diagnosis. (2) That gland tissue disturbances of the endometrium, whether from congestion or lack of blood supply, is not, according to Prof. Welch, an inflammation, and, therefore, not an endometritis, in the true definition of the term. (3) Such disturbances are better, and more scientifically treated from the medical than from the surgical standpoint. (4) That the curette, a powerful factor in the treatment of some forms of endometritis, is not curative in this form, and is, according to good authority, used much too frequently without due reason, and often by the irregular, with criminal intent.

The Curette in Gynecology. Robinson (*Milwaukee Med. Jour.*, Feb., 1899) discusses the uses and abuses of the uterine curette. He be-

lieves that immediately after abortion, miscarriage, labor and in infected uterus, the sharp curette has no place. The dangers of the curette are numerous. The first danger is perforation of the uterus; however, the perforation may be due to preliminary dilatation. Perforation by the curette is not uncommon in malignant disease. Large numbers of operators report perforation by the curette. In a septic uterus the walls are very friable, and extremely easy to perforate. After abortion or labor, perforation by the curette is most frequent and easy at the old placental site. Most inexperienced operators perforate the uterus while incautiously introducing the curette. To prevent perforation by the curette it is well to hold the hand on the fundus and locate the points which one wishes to curette. Should the curette slip beyond the resistance, it is well to withdraw it and measure with a blunt sound. With a perforated uterus, use ergot and opium. Uteric perforations by the curette do not call for hysterectomy. If intestinal hernia occurs, it would require hysterectomy. The curette makes rapid pyosalpinx out of salpingitis. Never curette without previous careful bimanual examination.

"The Uterus Again." Under this caption Fish (*Annals of Gynec. and Pediatrics*, Mar., 1899) gives his reasons why the uterus should not be sacrificed, if possible to retain it. He would leave the uterus: (a) Because it is an important sexual organ in its natural site, and consequently not in the way of any other pelvic organ. (b) Because it preserves the vaginal vault, and, when *in suspensio*, maintains the contour and natural length of the vagina. (c) Because it precludes the possibility of vaginal hernia, prevents prolapsus vaginae, and delays atrophy of the vagina. (d) Because it minimizes nervous shock and depressing mental manifestations. (e) Because it maintains the pelvic diaphragm and the anatomical geography of the pelvic contents. (f) Because in the event of successful ovarian transplantation it might be reinstated as an organ of procreation.

Ventral Hernia. Keefe (*Boston Med. and Surg. Reporter*, Feb. 16, 1899), in operating for ventral hernia, brings the fascia together with a buried silver-wire mattress suture or a machine-stitch of silkworm gut, the ends of which are brought out through the skin at either end of the wound, and removed at the end of 4 weeks. The adipose tissue and skin may be united with catgut, or silkworm gut may be used in the integument.

Ovarian Tumor Removed During Typhoid Fever. Cushing (*Annals of Gynec. and Pediatrics*, Mar., 1899) reports the successful removal of a large ovarian tumor during the acute stage of typhoid fever. The patient was a young girl, aged 11 years and 10 months, and had never menstruated. During 6 months prior to the operation, abdominal enlargement had been noted. Typhoid fever developed, and, the symptoms being urgent, an operation was performed; and, both ovaries being diseased, they were removed. The patient had 13 hemorrhages from the intestines 13 days after the operation, and had a long and severe struggle with the fever, being ill over 3 months. She finally made a perfect convalescence, and has

developed into a handsome, active girl, of great physical and mental vigor, now nearly 18 years old. It is interesting to note that, although the ovaries were removed before puberty, in no respect whatever does she seem, or, as far as can be ascertained in such a delicate matter by her mother, does she feel at all different from other girls of her age.

Curettage of the Uterus and Operation for Laceration of the Cervix. Wathen (*Med. Age*, Mar. 25, 1899) believes that operations for curettage and for cervical lacerations are nearly devoid of danger, if properly performed; and if in the selection of cases good judgment is exercised, the immediate and subsequent results are so nearly perfect that many women are restored to a condition of health, so far as the local disease and the reflex symptoms are concerned, nearly as perfect as before they had any disease of the generative organs. In operations for lacerated cervix, the uterus should be curetted, the cavity irrigated with bichlorid solution or wiped out with iodoform gauze, and then the necessary denudation performed. One reason why operations for cervical lacerations are not more successful is that the denudation is not extended under the cicatricial tissue.

Massage in Malpositions of the Uterus. Rumpf (*Amer. Gynec. and Obstet. Jour.*, Mar., 1899) believes that massage is the most valuable adjuvant we possess in the treatment of retroflexions of the uterus, and that about 50% of the cases will require no other form of treatment. All cases of retro-displacements in which pus and malignant disease may be positively excluded are benefited by this treatment. In his experience, massage has not been satisfactory in cases of antelexion and prolapse.

Treatment of Gonorrheal Vaginitis. Greenberg (*N. Y. Med. Jour.*, Mar. 25, 1899) advises the use of sitz baths of warm water with sodium bicarbonate, twice daily, and 2 hourly douches of sodium bicarb. solution, a gallon each time for the purpose of cleanliness. To kill the gonococci, once a day after the sitz bath and douche, the physician should thoroughly scrub the vagina with soap and water and a soft nail-brush, a speculum should be introduced and the tenacious pus from the cervix mechanically removed; the folds of the vagina should now be put on the stretch by the gradual withdrawal of the bivalve speculum and a 1 to 1,000 bichlorid solution, or, better still, a 5% pyoktannin thoroughly applied by means of cotton on an applicator.

The American Medical Editors' Association held its annual meeting at Columbus, June 5th, under the presidency of Dr. Thomas H. Hawkins, editor of the *Denver Medical Times*. The address was delivered by Dr. J. D. Emmett, editor of the *American Journal of Gynecology and Obstetrics*. The officers elected for the ensuing year are: President, Dr. I. N. Love, St. Louis, Mo.; vice-president, Dr. J. E. Brown, Columbus, O.; secretary, Dr. Dillon Brown, New York; treasurer, Dr. Alexander Stone, St. Paul, Minn.

OBSTETRICS.

UNDER THE CHARGE OF

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ASSISTED BY

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Artificial Dilatation of the Cervix. Frarier (*Le Mois Medico-Chirur.*, May, 1899) advocates bilateral incisions at the commencement of the dilatation stage in primiparae when interference is necessary. Each incision is but $\frac{1}{5}$ of an inch in depth, and is always successful and without danger. He condemns the use of chloral, chloroform, balloons, quinin, injections, etc., as dangerous or inert. Manual dilatation is only to be used as a necessity.

The Value of Posture in the Treatment of Occipito Posterior Positions. Green (*Boston Med. and Surg. Jour.*, Vol. CXL, No. 21) states that in his early practice he was struck with the posture assumed during the first stage by many dispensary patients of kneeling by the bedside with the body forward over the bed and resting on the arms. This position brings the anterior wall of the uterus lowermost and in an unengaged occipito-posterior position the back of the fetus must, by force of gravity, rotate on its long axis and become dependent. He has frequently confirmed this change in position of the fetus upon this posture being employed. If the head is pocketed in the inlet, he advocates at first the knee-chest posture, followed by the kneeling position. If the head has passed the brim, rotation is greatly favored by the latero-prone posture, the patient lying on the side toward which the occiput should rotate. The kneeling posture has the advantage of being a comfortable one for the patient, and the latero-prone position is also easily taken during the second stage.

Over Distension of the Uterus from Excess of Amniotic Liquid. Hibbard (*Mass. Med. Jour.*, June, 1899) reports three cases of hydramnios occurring in his practice. The first case contained 34 pints of liquor amnii and was delivered of twins, both dead, and one an acephalous monster. The second case contained 23 pints, the hydrocephalic fetus being dead. The third case contained 11 pints, with a dead fetus. The placentae of all three cases were similar, being ulcerated in patches and containing pus cells. They were of a greyish-blue color and friable. The cord in the first case was 56 inches long, 35 inches in the second, and 27 inches in the third.

Omphalotripsy. Porak (*La Revue Med.*, May 31, 1899) reports that he has reduced infantile mortality from 10% to 3% since he has adopted force pressure in the treatment of the cord instead of the ligature. Umbilical infection is far more prevalent than is generally understood. He uses a wide crushing forceps which flattens out the cord to the skin level. The result is a rapid dessication.

Three Conservative Caesarian Sections upon the Same Woman. Pollak (*Centralbl. für Gynecol.*, Apr. 15, 1899) reports such a case. The literature shows that 12 similar cases have been reported. The uterine wall showed no signs of thinning at the site of the previous incisions.

The Prophylaxis and Treatment of Puerperal Fever. Moran (*Am. Jour. Obstet.*, June, 1899) discusses the work of recent investigators on this subject. He is confident that the repeated giving of intrauterine douches and the use of the curette in streptococcus infection is decidedly harmful. It is important to determine whether the case be due to simple streptococcus, mixed infection, or other organism, as curative effect with serum is only claimed for the simple streptococcus infection. He reports 3 cases treated with injections of Marmorek's anti-streptococcus serum, which were followed by decided benefit, the bacteriological diagnosis of pure streptococcus infection being previously determined.

Adherent Placenta. Reed (*Jour. Am. Med. Assoc.*, May 6, 1899) discusses the subject under three headings, according to the etiology, viz.: Placental causes, uterine causes and utero-placental causes. Under placental causes is a diffuse connective tissue inflammation, the placenta being firm and of a pale appearance. Syphilis, rheumatism and placenta previa are also included as causes under this heading. Atony of the uterus is the principal uterine cause, also inversion and endometritis. According to Myulasy, a fibrin deposit originating in the decidua and involving the placental surfaces is a frequent utero-placental cause. If the placenta is not removed at once, after a fair trial of manual extraction, he advocates packing the uterus for 48 hours, after which time the placental remnants can easily be removed by the fingers.

Treatment of the Umbilical Stump. Kusmin (*Centralbl. für Gynecol.*, No. 10, 1899) uses a rubber ligature 1 cm. from the abdomen and surrounds the remainder with a plaster of Paris bandage, thus excluding moisture and air and preventing infection.

Postpartum Hemorrhage. Bastain (*Revue Med. de la Suisse*, No. 5, 1899) says that when all other means fail, success can be obtained by introducing a long Cusco bivalvé speculum into the vagina, separating the blades widely and packing the vagina tightly with gauze. The speculum is left in place.

INTERNATIONAL MEDICAL MAGAZINE.

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We have no quarrel with the better journalism of the land, which desires the enlightenment of men and the promotion of their welfare. But as in every walk of life the conflicting elements of good and evil mingle, truth and idealism confronted everywhere by utility, Philistinism and sordidness, so the greatest exponent of our average culture, our greatest protection against fraud, shares in one of the most flagrant frauds.

**Patent Medicines
in the Public
Press.**

It has been estimated that, as a nation, we spend a hundred millions annually for patent medicines. This vast sum, which is nearly clear profit, is divided between the advertiser and manufacturer, and reaped from the wage-earners by means of the public press. It would seem that such a palpable fraud needs the knife more urgently than Government departments that are constantly kept in evidence.

The same credulity that expects early riches from "pools" and fictitious corporations hopes for a wonderful cure by a remedy which has escaped the wise men of medicine and was confided to the manufacturer's forefathers by some aboriginal root-digger. Nor is this credulous element of human nature a small or unimportant one. The eminent divines and statesmen whose portraits accompany their declaration of faith and lack of understanding eloquently emphasize this human weakness.

If the affluent supported this deception there would be less room for complaint, but social vanity requires a quackery of different order than is exploited on the advertising pages of the daily paper or the sign-boards of the town.

The patenting of medicines should be entirely abolished. As it is now, a great art is used for commercial purposes whose essential mercantile feature has nothing whatever to do with the application of drugs. If this cannot be done away with—and it probably cannot—the law can exact that the precise formula be given on the label of all remedies and any deviation or adulteration should be vigorously dealt with.

We are a long-suffering people; and, having had these abuses with us so long, we have become indifferent to them, and accept the situation as the inevitable consequence of human credulity. But as the law undertakes to protect the people from all manner of frauds, and is constantly limiting their operation, there is reason to believe that before many years the public press will be closed to this evil, as in foreign countries, and the medicinal parasites will be driven to obtain bread according to the original decree, by the sweat of the brow or brain sweat, but not by giving worthless concoctions for the wages of toil.

The Woodbridge treatment of typhoid fever has failed to establish any specified line of procedure; but, like many new departures, it brings to the foreground some element of truth valuable to the art. The eliminative and antiseptic measures now employed in the intestinal tract constitute a marked advance in the management of the disease over the old methods. The character of the typhoid evacuations, fetor, gas, etc., point to the generation of toxins which should, as far as possible, be restricted and eliminated. Otherwise they give rise to a multitude of local lesions—hepatitis, nephritis, parotitis, pleurisy, pneumonia, etc.—all doubtless due to the direct action either of the bacteria themselves or their products. This view of the causation of complications in the acute infections originates with Prof. Babes, of Bucharest, who found the bacteria of nearly all the acute infections abundantly present in the gray matter of the brain and cord, probably producing the phenomena of these diseases.

Measures therefore to keep the various secreting organs active, and thus eliminate the poisons developed in the intestinal tract or elsewhere are naturally suggested, and to check a typhoid diarrhea would be locking up the poisons in the system. This does not justify drastic purging, which is equally undesirable by depriving the economy of its protective fluids, and thus permitting extended invasion. Mercury in small doses and podophyllin are highly useful as eliminatives, while naphthalin, salol, benzosol, thymol and sulpho-carbolate of zinc can be effectually used to check intestinal fermentation. From one to three copious stools in twenty-four hours is to be desired according to the intensity of the process, nor do frequent stools appear to deplete the patient. It is usually conducive to quiet and comfort, by removing the gas and irritation of the bowel contents, which is often still more effectually done by washing out the bowel with boric solution, a tablespoonful to the quart of sterile water with the chill off. Colon irrigation with cool water is one of the most valuable procedures in reducing fever, flushing the intestinal capillaries, the kidneys and the portal system of the ptomaines and waste and thus affording relief to the overworked excretory functions.

The cosmic element in disease is a field in which the most powerful microscope or the most extended research has shed no light, and yet, in the perfect distribution and adaptations of life, there is no room for doubt that the great infections come under the dominion of law just as other living principles, and that the law will some day be known is quite probable. Why are some diseases cyclical in their appearance, or why do others, like the semi-active volcano, suddenly break into frightful activity and leave widespread death in their wake? What this strange relation is between infective disease principles and the forces of the planet is too subtle for our present analysis; but analogy suggests its existence.

Within historic times syphilis and leprosy have once taken on an acute epidemic character which invaded practically the world, and yet Science has nothing to offer in explanation of such a phenomena. No one for a moment thinks any new infirmity was launched on suffering humanity by the jealous gods, for doubtless prior to this time (1495) syphilis was a mild or even much milder disease than in our own period. It is not sufficient to regard disease as fixed in character, for, like all life, the infections likewise are probably evolutionary, and show in the changes of the planet's life just as higher orders. It is entirely erroneous to conceive of disease to-day as being the same that vexed and destroyed the tertiary monsters or our primitive ancestors. The law of evolution is all inclusive, and man's diseases are changing like himself. As races of men, animals and plants have fulfilled their destiny in Nature's economy and passed away, so their diseases have likewise probably perished with them. In what way new diseases may develop, is not clear; but, as new types of men are developing from their predecessors, entirely differing in features, temperament and character, so the infective diseases have possibly varied in the ages. The kinship of variola, vaccinia and varicella, of measles, diphtheria and scarlatina, of syphilis, tuberculosis, cancer and leprosy, would strongly suggest a common ancestry for some of these types which have been modified in man by his departure from the plane of animal life.

All the great epidemics are growing milder, aside from sanitation, vaccination and any limitations we may place about them; but whether from the environment of civilization or their innate tendencies is unknown. We may fancy ourselves freed from the terrors of cholera, plague and small-pox before many years; but does not the influenza arise without warning in the most various parts of the earth and spread over it without reference to any law in our knowledge, and may not other and even more destructive diseases develop, of the same character?

Could we but reveal the pathology and bacteriology of the past, what a marvellous tale would be unfolded to our eyes! The forces of life are also the forces of death, and the secret of the diseases with which man has warred for supremacy since the beginning is locked up with the mystery of

his destiny, and beyond his control and cure cosmic relations operate for their perpetuation in the economy of existence which no understanding can encompass.

Floating around among the daily papers we have observed a story concerning an old citizen of a Western town, who, twenty-eight years ago, was said to have been given up to die by eight different physicians on account of advanced lung trouble. He has lived to see five of the eight erroneous prognosticators die before him, and, as the story goes, expects to help bury the other three.

**Cock-Sureness in
Prognosis.**

This yarn may or may not be true—probably not; but cases do frequently occur in which physicians, whose bump of carefulness is not so well developed as their habit of cock-sureness, have condemned to death patients who lived long afterward to point the finger of scorn at them. For, even when the doctor who has conscientiously given a too gloomy prognosis afterward saves the patient by the most brilliant skill and untiring devotion, it avails nothing to keep his reputation unblemished. No doctor is ever excused for prognosticating the speedy death of a patient who does not make his word good by dying at the time designated. The moral is: Guard your prognosis. There are very few cases indeed in which it is entirely safe and politic to announce that a person must certainly die within a given time. It is much better to say, "The chances are very largely against the patient"; or, "In conditions like this, death nearly always results within a short time."

The *denouement* of the same story contains another moral. The dying man who claims to have survived most of his physicians says that he finally went home, threw away all his medicines, "staid out in the open air all I could," and by the end of the year was well. It is precisely in lung cases that similar miracles

**The Open-air
Cure.**

do sometimes happen, even in the serious cases and in just this way; while in the earlier stages, such a fortunate result may be expected as the rule if the patient will put aside all doubtful or disturbing drugs and just stay out most of the time in the open air in almost any climate where there is not a dense population or contaminated air or water. In other words, an abundance of pure, out-door air and sunshine will cure a large proportion of pulmonary cases under right hygienic conditions without medicines. Such patients should be further instructed that, when unavoidably in-doors, as at meal hours and during stormy weather, they should have the shades or blinds removed from the windows so as to receive the benefit of all the light there is, and to have their windows open day and night, except in the coldest weather. The continuous open-air cure has proved the most efficient so far of any known, and has proven remarkably helpful even in such cold and disagreeable climates as those of northern and central Germany.

A Louisville physician (Dr. Robert C. Kenner), in discussing the treatment of acute articular rheumatism, objects to "salicylic acid, salicylate of sodium, oil of wintergreen and other drugs of this nature, notwithstanding that they have in many cases given the most brilliant results." He declares that in the last few years he has ceased altogether to administer the salicylates, on account of their depressing effect on the heart and irritant action on both the kidneys and digestive tract. There is, unfortunately, only too much truth in this indictment, and we therefore turned eagerly to the latter part of Dr. Kenner's paper in the *St. Louis Medical Mirror* for May, to learn with what potent yet innocuous remedy he had treated the seventy-five cases the results of which he summarizes. A new anti-rheumatic which could rival the salicylates in curative effects and yet be non-depressing and safe would be a desideratum. What was our surprise to find that it was salophen—a proprietary remedy of value no doubt, but itself a salicylate, being a derivative of salol, which is 60% salicylic acid and the remainder phenol, the latter a drug which in its ordinary forms is more irritating to the kidneys than the usual alkaline bases—soda, potash and lithia.

Dr. Kenner makes the claim that salophen "does not interfere with digestion and does not produce biliousness or heaviness, and consequent melancholy, as do the salicylates," adding: "It has never shown any depressing action on the heart, nor does it irritate the kidneys." Unfortunately, it is not usually until new drugs and drug-combinations have been in use some time that their untoward effects are fully reported. The earlier accounts of them are nearly always *colour de rose*.

It is probably true that salophen acts somewhat more pleasantly than the other salicylates, upon the digestive organs at least; yet, all the same, it contains considerable salicylic acid and apart from the ethical objections to the use of a proprietary remedy, it would not be wise to push it boldly in patients with diseased hearts or kidneys on the supposition that it is incapable of doing harm.

EDITORIAL MENTION.

THE diagnostic value of lumbar puncture in epidemic cerebro-spinal meningitis is now well recognized, and the rather frequent use of the method during recent epidemics has confirmed the expression that this procedure, when properly performed, is nearly free from danger. Cases have not been wanting in which the puncture seemed to have a therapeutic as well as a diagnostic value. Rolleston and Allingham have recently (*Lancet*, April 1, 1899) reported a case of cerebro-spinal meningitis for which laminectomy

of the seventh and eighth dorsal vertebrae was successfully performed. The patient was a man aged twenty-four, and had been ill six days. As the symptoms were indicative of cerebro-spinal meningitis, and were progressive, the operation was determined upon. On operating, the dura mater was found to bulge and was incised for one inch, permitting the escape of three ounces of coagulated lymph and cerebro-spinal fluid. A drainage tube was introduced, and it was necessary to continue drainage for over a month. The *diplococcus intracellularis meningitidis* was not found. While the case was not strictly typical or fulminant and while recovery might have occurred irrespective of the operation, the prompt amelioration of symptoms following the free drainage is at least suggestive. With a malady of such high mortality, a wider application of cerebro-spinal drainage by puncture or by direct incision certainly seems warranted in cases under favorable auspices.

As a result of his very large experience, Prof. E. E. Montgomery, in a recent clinical lecture, confirmed the prevalent belief that one of the most frequent causes of abortion is syphilis. In view of this fact, he urged his hearers to search thoroughly for a specific history in all cases in which women give a history of having many times aborted. When the history confirms the suspicion, the anti-syphilitic treatment should of course be pushed for a considerable time; but Montgomery urges that when the history leaves the question in doubt it is a good thing to give iodid of potassium anyway, claiming that it is one of the most effective remedies in decreasing the irritability of the uterine mucous membrane. In this connection he says: "I have seen many patients in whom it is impossible to elicit any indication of syphilis, who have done well and carried the fetus to full term upon the use of iodid of potash. So much value have I seen from the use of this drug that it is now my custom in every case of irritable uterus where abortion is feared, to place the patient upon the use of iodid, five grains three times a day, given in water after meals. In cases in which sclerosis or areolar hyperplasia of the uterus has occurred, I know of no plan of treatment which will insure a woman to complete her pregnancy."

It is worthy of mention here, that tincture of *cimicifuga*, which seems, in small doses, to have a sedative action upon the genital centers, will often prevent a threatened abortion when administered in drop doses every two hours. We have often seen this prove effective after opiates had failed.

Successful Surgical Treatment of Aneurism of the Abdominal Aorta. Langdon also reported before the London Clinical Society a case of aneurism of the abdominal aorta for which coeliotomy and the introduction of 5 feet of silver wire in the sac were successfully performed nearly one year before.

BOOK-REVIEWS.

DEFECTIVE EYESIGHT. By D. B. St. John Roosa, M.D., LL.D., of New York. New York, The Macmillan Company. 1899. Price, \$1 net.

The small volume is a revision of the author's "Determination of the Necessity for Wearing Glasses," first issued in 1888. The book is well written, and in a vigorous and dogmatic manner; but it is so full of antiquated and erroneous statements, that we feel compelled to spend more space in correction than is usual in the review of unimportant books. It is this class of books that is aimed directly at the general public, who are naturally without the necessary knowledge for critical judgment, and who accept as scientific truth anything set before them by a medical man of reputation.

The author says we are suffering from a glass-wearing craze. He has grave doubts about the remote reflexes of eye-strain. He denies the existence of muscular asthenopia. He appears to be against correction of both eyes in anisometropia and cites an illustrative case in which he allowed a patient with $\frac{20}{70}$ vision in one eye and $\frac{20}{20}$? in the other, whom the proper cylindric correction would have given equal and normal vision in the two eyes, to go without glasses simply because none that she had worn before were comfortable. If the examination had been properly conducted under mydriasis and the patient given instructions to persist absolutely in wearing glasses for at least one week, despite her feelings, she would most likely have worn glasses with great comfort and satisfaction the balance of her life. While crying down the wearing of proper glasses in defective eyes with absence of ocular symptoms, the author loses all sight of the remote reflexes and gradual disruption of the nervous equilibrium by the constant nervous loss in persistent accommodative strain.

At first thought, the statements and deductions in this book will seem inexplicable to skilled refractionists who are daily relieving asthenopic patients with even very weak glasses. However, all is made plain by a perusal of the author's condemnation of cycloplegia and his advocacy of such unreliable instruments as the ophthalmoscope and ophthalmometer, in the measurement of errors of refraction; notwithstanding the generally accepted belief among scientific physicians that for accurate refraction complete ciliary paralysis is absolutely necessary; that all objective tests except retinoscopy under complete cycloplegia are unreliable and often distinctly misleading in low degrees of ametropia; and that all tests must be confirmed by subjective examination with the test-lenses and test-letters.

The author is also unsound in his treatment of presbyopia. He cites one instance in which he did not order cylinders in a case of astigmatism in both eyes and of unequal degree, because the patient seemed to read comfortably with simple spheric lenses. He is even inclined to doubt the existence of pure presbyopia. The one redeeming feature of the book is the condemnation of muscle operations and prisms. But here again our radical author denies the existence of muscular asthenopia or that good can come from prism-exercise in insufficiency of adduction.

The book may be a safety valve to rampant faddism, but it is certainly an unsafe manual for persons seeking knowledge relative to the diagnosis, symptoms, results and treatment of ametropia.

DISEASES OF THE EAR, NOSE, AND THROAT AND THEIR ACCESSORY CAVITIES. By Seth Scott Bishop, M.D., D.C.L., LL.D., Professor of Diseases of the Nose, Throat, and Ear in the Illinois Medical College; Professor in the Chicago Post-Graduate Medical School and Hospital, etc. Second edition. Thoroughly revised and enlarged. Illustrated with 94 chromolithographs and 215 half-tone and photo-engravings. $6\frac{1}{2} \times 9\frac{1}{2}$ inches. Pages xix-554. Philadelphia, The F. A. Davis Co., Publishers, 1914-16 Cherry Street. Extra cloth, \$4 net.

The ear, nose, and throat can well be considered together, since they are not only neighboring but intimately connected organs. It would be more appropriate, perhaps, to name the ear last in the collection, since it is rather less important than the others, and some of its more frequent affections result usually from disease of the nasopharynx by a direct extension. But this is a point of minor importance. The author of the work before us seems to be almost equally at home in each of the four parts into which it is divided, though he has treated the aural portion of his subject, and especially the important mastoid operations, with somewhat more fullness and thoroughness than anything else. In his preface he announces that he has aimed to make the book "a key, or introduction, to the exhaustive treatises already in the field," and says further: "This work was designed, first, to help students in preparing for their degree; second, for those progressive practitioners who wish to acquire the proficiency necessary to properly treat those patients who are unable to visit specialists."

In view of this modest announcement, Dr. Bishop must be credited with having fulfilled his task acceptably and well. The book will prove exceedingly useful to a very large class of practitioners. Indeed the exhaustion of the first edition in a year and a half is evidence that it fills a want. The best features of the work are the clear and interesting manner in which the various subjects are discussed, the large number and graphic character of the illustrations, the very full list of formulas for atomization, etc., and, especially, the skill and excellent mastery of English, by means of which the author has condensed a satisfactory account of so large a group of allied subjects, based upon the most recent discoveries and methods, into one convenient volume. There is little to be said by way of criticism, though in the very interesting chapter on "Hay Fever" the extreme views of Haig have been somewhat too blindly followed. Like that eminent authority and too many of the specialists in diseases of the eye and upper air passages, Dr. Bishop sees the effects of uric acid only, where workers who have delved more deeply into the morbid aberrations of tissue metamorphosis have recognized a large number of other known and unknown toxic products as equally if not more at fault. We cannot agree, either, with the author in advising the use of antipyrin or any of its vicious brood of congeners in acute inflammatory conditions, such as those of the middle ear, when other safer and more efficient remedies are at hand. The second edition has been increased one-fourth in size, and, in addition to many

valuable new engravings, it has been rendered much more complete by the introduction of entirely new chapters on "Related Diseases of the Eye and Nose" and on "Life Insurance Affected by Diseases of the Ear, Nose and Throat," as well as special illustrated articles on "Direct Laryngoscopy or Autoscopy," etc. It is a neat, handsomely printed volume, and many of the illustrations are superb.

TEXT BOOK OF OPHTHALMOLOGY. By Ernest Fuchs, Professor of Ophthalmology in the University of Vienna. Authorized translation, revised from the seventh enlarged and improved German edition. By A. Duane, M.D., Assistant Surgeon Ophthalmic and Aural Institute, New York. Second American edition. New York, D. Appleton & Co. 1899. Price, \$5, in cloth.

The second American edition of this monument of ophthalmic erudition is most welcome. In addition to the merits of lucidity, judicious treatment of the subject, and excellence of proportion and balance that have always characterized Prof. Fuchs' treatise, this edition bears everywhere the marks of thorough revision. Additions and corrections bring the book up to date in all parts, so that it presents the best summary in one volume of modern ophthalmic science that we have. The most marked changes will be met with in the sections upon functional examination, the pathology of cornea and conjunctiva, and diseases of the fundus. Over eighty illustrations have been added. The translator has wisely enlarged and Americanized the section upon the correction of ametropia; and inserted two new sections: upon heterophoria, and upon the use of homatropin and other cycloplegics. These are in accord with the most recent American teaching.

SAUNDERS' MEDICAL HAND ATLASES. ATLAS OF DISEASES OF THE SKIN, INCLUDING AN EPITOME OF PATHOLOGY AND TREATMENT. By Prof. Dr. Franz Mrazek, of Vienna. Authorized translation. Edited by Henry W. Stelwagon, M.D., Ph.D., Clinical Professor of Dermatology, Jefferson Medical College, Philadelphia, etc. With 63 colored plates and 39 full-page half-tone illustrations. Philadelphia, W. B. Saunders, 925 Walnut Street. 1899. Price, \$3.50.

This atlas, besides the excellent letter-press matter which, though condensed, is clear, graphic and thoroughly up to date, is a marvel of the pictorial art. Those of us who sat on the benches a generation ago had few or none of such extraordinary aids in studying the many delicate differences and peculiarities of diseases of the skin. Such a volume as that now before us must be of the greatest service to general practitioners, since the representations are so perfect and natural, both in detail and color, that by their aid even the physician with eyes untrained in differentiating many of the various eruptions, etc., could scarcely fail to recognize them. The first part of the book, covering 191 pages, is devoted to the letter-press descriptions of the different dermatologic affections with the latest recommendations as to treatment accompanied often by prescriptions. Then follow the 102 full-page plates, beautifully printed on heavy paper. A copious index completes the volume. This is a work which merits unqualified commendation in every respect.

PRESCRIPTIONS BY NOTED THERAPEUTISTS.

FOR MERCURIAL STOMATITIS.

R Thymoli,.....	0.25;
Extr. krameriae,.....	1.0;
Solve in glycerin,.....	6.0.
Adde:	
Magn. ustae,.....	0.5;
Natri biborici,.....	4.0;
Sapon. medic.,.....	30.0;
Ol. menth. pip.,.....	10.
Sig. Tooth soap.	

R Tr. gall.,	
Tr. krameriae,.....	āā 12.0;
Resorcini,.....	3.0;
Mentholi,.....	0.25.
S. Gargle —LJANTZ.	

FOR DROPSY.

R Uropherin salicyl.,....	5 grms.;
Aq. destil.,.....	120 c.c.;
Vanillini,.....	0.001.
Muc. acaciae,	
Syr. simpl.,.....	āā 15 c.c.
S. A dessertspoonful 3 to 4 times daily.—SCHMIDT.	

PRURITIS.

R Salicylate of methyl,....	2 grms.
Oxide of zinc,.....	20 “
Vaselin,.....	20 “
M. S. Ointment.—LECREDEDE (<i>Soc. de ther.</i>).	

WHOOPIING COUGH.

R Sodium benzoat,.....	72 gr.
Sodium bicarbonat.,....	48 “

Ammon. chlorid.,.....	24 gr.
Chloroform water,....	1 oz.
Anise water, to make,....	3 oz.

M. S. 1 to 4 teaspoonfuls, according to child's age, in a little hot milk, every 4 hours —BURNEY YEO (*Practitioner.*)

INFECTIVE GASTRO ENTERITIS.

R Tr. iodi.,.....	15-18 gtt.
Aquæ destil.,.....	150 gm.
Syr. Simplicis,.....	20 “
M. S. Teaspoonful every 1 or 2 hours.—DR. GROSH (<i>Semaine Med.</i>).	

PALATABLE EFFERVESCENT QUININ.

R Quininæ sulphatis,.....	4
Acidi citrici,.....	10
Syr. simplicis,	
Syr. aurant. cort.,.....	āā 1
Aquæ destil.,.....q. s. ad 20	
M. S. Add 10 or more drops to about 50 grams of water, in which 0.3 gm. of bicarbonate of sodium has previously been dissolved, and drink while effervescing.— <i>Klin.-therap. Wochenschrift</i> , No. 14, 1898.	

EXPECTORANT—ACUTE AND CHRONIC BRONCHITIS.

R Ammon. mur.,.....	8 parts.
Tr. Aconite root,.....	2 “
Syr. tolu,.....	30 “
Syr. wild cherry,.....	120 “

M. S. A teaspoonful every 3 hours. SILVERMAN (*New Eng. Med. Monthly.*)